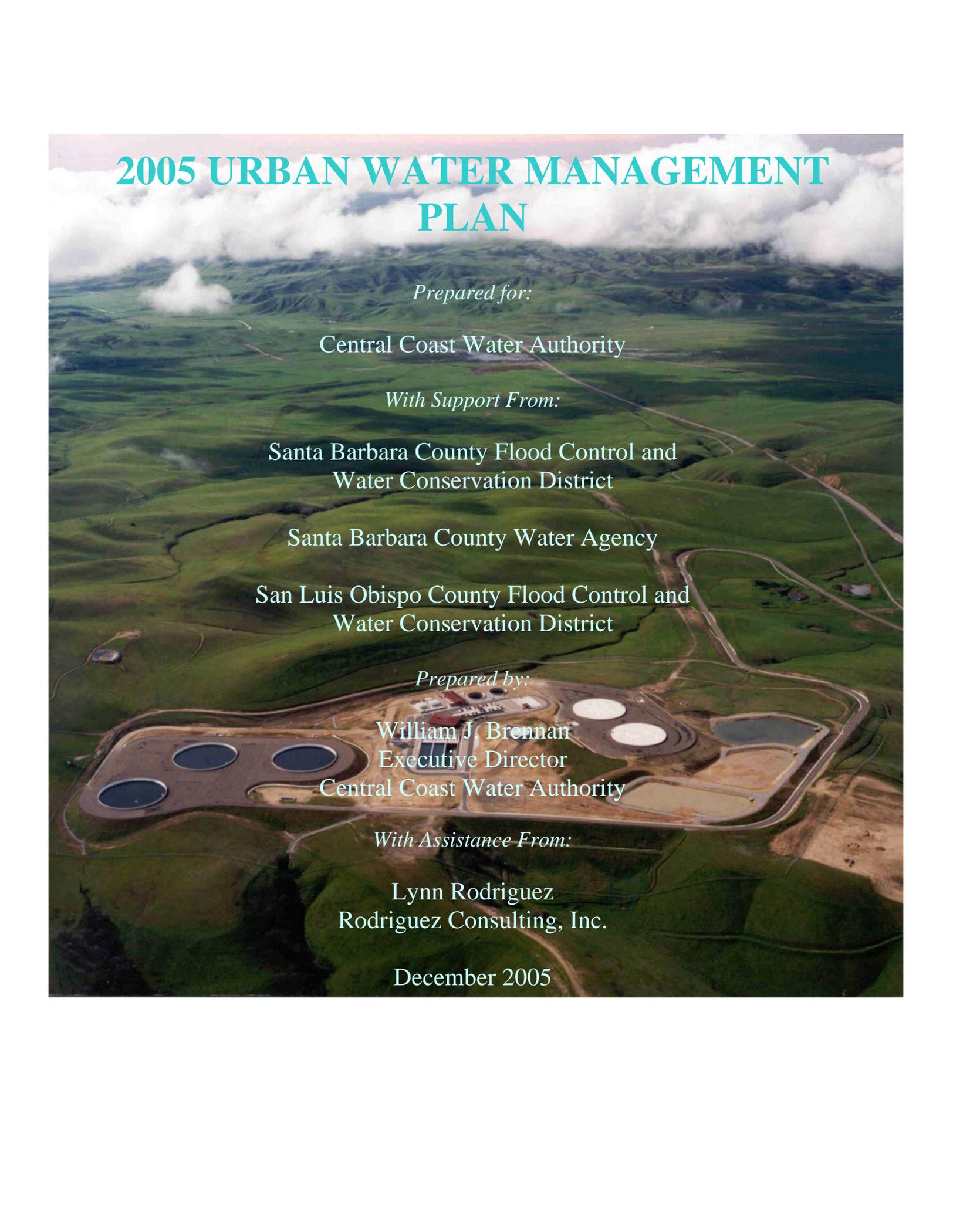


APPENDIX 3-5

Project 5: Central Coast Water Authority, Water Supply Reliability and Infrastructure Improvement Project

- 2005 CCWA Urban Water Management Plan
- Biological Survey Report
- Engineering Review of Pipeline Repair Alternatives
- Proposed Santa Barbara County IRWM Data Management System, Application for Prop 84 Planning Grant, Round 1, Santa Barbara County, IRWM Plan 2012, Task 4: Establish Data Management System, pp. 51, September 28, 2010



2005 URBAN WATER MANAGEMENT PLAN

Prepared for:

Central Coast Water Authority

With Support From:

Santa Barbara County Flood Control and
Water Conservation District

Santa Barbara County Water Agency

San Luis Obispo County Flood Control and
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December 2005



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Appendix A – Resolution of the CCWA Board of Directors Adopting the CCWA 2005 Urban Water Management Plan

Appendix B – Santa Barbara County 2004 Report to the California Urban Water Conservation Council

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GLOSSARY



INTRODUCTION

This Urban Water Management Plan (UWMP) has been prepared in response to the Urban Water Management Planning Act (Act), California Water Code Sections 10610 through 10650. The Act was adopted by the California Legislature as Assembly Bill 797 during the 1983-84 session and signed into law by Governor Deukmejian on January 1, 1984. The Act requires that “every urban water supplier shall prepare and adopt an Urban Water Management Plan”. Urban water supplier is defined as “a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually”. Under this definition, the Central Coast Water Authority (CCWA) is considered an urban water supplier.

Since CCWA is a relative newcomer to the water supplier landscape, this 2005 UWMP represents its initial plan. CCWA is exclusively a water wholesaler providing potable water for municipal uses indirectly through retail urban water suppliers in Santa Barbara and San Luis Obispo Counties.

The intent of this plan is to provide DWR, participating retail agencies and the public with information on present and future water sources and demands and to provide an assessment of CCWA’s water resource needs. Specifically, the UWMP must provide water supply planning for a 20-year planning period in 5-year increments, identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years, and assure efficient use of urban water supplies. This UWMP addresses all Water Code requirements for such a plan.

CCWA has coordinated its UWMP planning efforts with a number of agencies to ensure that data and issues are presented accurately. CCWA’s UWMP includes a broad overview of its service area and operational facilities, as well as a general description of the service area’s water conservation, water recycling, and water supply and demand management activities. Being a water wholesaler, CCWA supports the water conservation efforts implemented by its retail agencies. This UWMP focuses on CCWA’s own activities, and the activities of three County level agencies in Santa Barbara and San Luis Obispo Counties, due to specific contractual relationships that exist between the agency and CCWA, or due to their activities relating to urban water management planning within CCWA’s service area. These agencies are the Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD), Santa Barbara County Water Agency (Water Agency), and the San Luis Obispo County Flood Control and Water Conservation District (SLOCFC&WCD). CCWA has legal relationships with SBCFC&WCD and SLOCFC&WCD that will be discussed further on page 10 of this plan. The Water Agency is a dependent special district, along with the SBCFC&WCD comprises the Water Resources Division of the Santa Barbara County Public Works Department. The Water Agency is responsible for regional water efficiency programs in Santa Barbara County, and its region wide activities will be discussed in this plan. This plan will not include a detailed description of individual retailer conservation programs, since each retailing agency is an urban water supplier and will prepare its own



2005 Urban Water Management Plan

urban water management plan. Similarly, details of recycled water treatment and distribution are left to the UWMP's of the urban water suppliers who perform these tasks within CCWA's service area. Because of the unique relationship between CCWA, SBCFC&WCD, the Water Agency and SLOCFC&WCD, some of the topics discussed in this plan will reflect the activities of each organization as it relates to the wholesale importation, treatment and delivery of SWP water to the Central Coast.

Urban Water Management Plans are to be adopted by each urban water supplier and submitted to the Department of Water Resources by December 31, 2005. The California Environmental Quality Act (CEQA) does not apply to the preparation and adoption of Urban Water Management Plans (Water Code Section 10652).



UWMP Checklist

This UWMP addresses the Water Code requirements for such a plan. The following is a checklist indicated where each Water Code requirement is addressed in the UWMP (in the order of the referenced Water Code Section)

Water Code Section(s)	Section	Page Number
10620(d), 10621(b), 10642	Agency Coordination and Public Participation	8
10631(a)	Service Area Information	12
10631(b)	Water Sources	30
10631(b) 1-4	Water Sources - Groundwater	32
10631(c) 1-3	Reliability of Supply	34
10631(d)	Transfer and Exchange Opportunities	38
10631(e) 1-2	Water Use by Customer Type	41
10631(f) 1-4	Demand Management Measures (DMMs)	45
10631(g)	Planned Water Supply Projects and Programs, including non-implemented DMMs	53
10631(h)	Planned Water Supply Projects and Programs	54
10631(i)	Development of Desalinated Water	56
10632	Water Shortage Contingency Plan	58
10632(b)	Three-Year Minimum Water Supply	60
10632(c)	Catastrophic Water Supply Interruption Plan	61
10632(d-f)	Prohibitions, Penalties and Consumption Reduction Methods	62
10632(g)	Revenue and Expenditure Impacts Analysis	63
10633	Recycled Water Plan	65
10634	Water Quality Impacts on Reliability	67
10635 (a-d)	Projected Normal Year And Dry Year Supply, Water Service Reliability	69
10640-45	Adoption and Implementation of UWMP	73



AGENCY COORDINATION

Water Code

Section 10620

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

The Central Coast Water Agency is a wholesaler which serves imported State Water to retail water agencies in the Santa Barbara and San Luis Obispo Counties. As a first step in the preparation of the 2005 UWMP, CCWA met with staff from Santa Barbara County Flood Control and Water Conservation District, Santa Barbara County Water Agency and San Luis Obispo County Flood Control and Water Conservation District. Through a series of meetings and conference calls, CCWA maintained lines of communication to ensure the efficient and timely transfer of relevant data needed to complete the UWMP.

The following table lists the types of organizations that were contacted. See Appendix C for additional contact information.

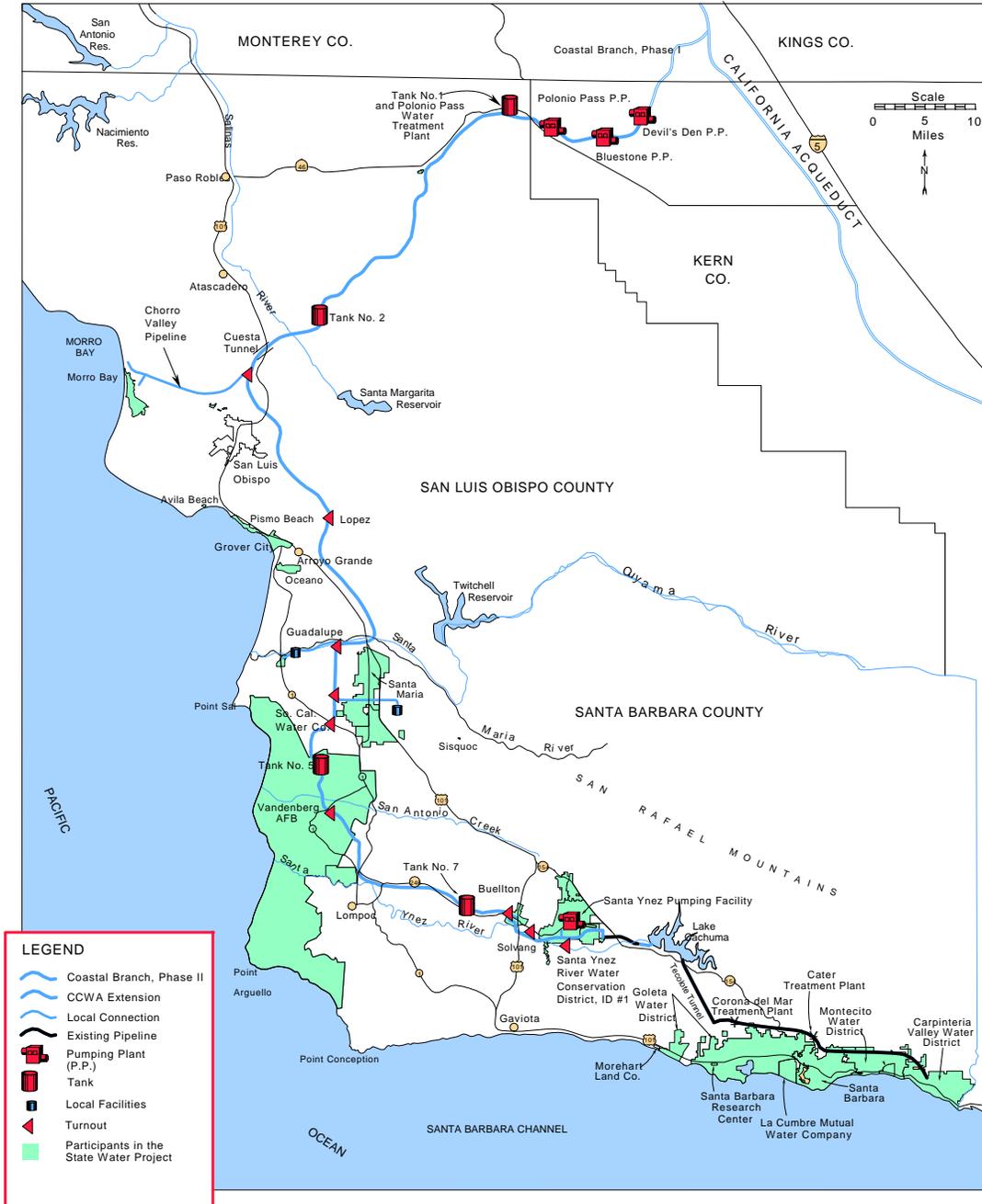


COORDINATION AND PUBLIC INVOLVEMENT						
Entities	Coordination and Public Involvement Actions					
	Helped write the plan	Was contacted for assistance	Received copy of the draft	Commented on the draft	Attended public meetings	Received a notice of intention to adopt
County of San Luis Obispo – Flood Control and Water Conservation District	✓	✓	✓	✓	✓	✓
County of Santa Barbara – Water Agency	✓	✓	✓	✓	✓	✓
Retailers (Contractors in each County)			✓			✓
Wastewater Agencies			✓			✓
Other Relevant Public Agencies			✓			✓
Environmental Organizations			✓			✓



Figure 3

Coastal Branch Phase II Project Map





A Commitment to Environmental Protection

Throughout the planning and construction of the project, CCWA was committed to environmental protection. CCWA formed a project team of CCWA staff, engineers, environmental consultants and attorneys charged with integrating their respective skills and treated environmental protection with the same priority given technical and financial issues. Environmental mitigation measures were incorporated into the project from inception to completion. The project team conducted regular meetings to maintain clear lines of communication and reporting. Each team member took personal responsibility for completing tasks properly and timely, resolving small problems before they became bigger problems, and staying ahead of issues to prevent problems from developing.

Before project planning began, the team met with every regulatory agency that might have had jurisdiction over the project. They discussed potential resource issues that needed to be addressed and established a dialogue that encouraged the resource agencies to call if problems were identified as the project progressed.

CCWA and its project participants complied with both CEQA and the National Environmental Protection Act (NEPA) and prepared three EIRs with Supplemental EIRs, an Environmental Assessment and a number of Negative Declarations. CCWA and its consultants coordinated closely with the California Department of Fish & Game, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, U.S. Bureau of Reclamation and local Native American groups to formulate and implement a mitigation and monitoring program to (1) protect sensitive species and their habitats, (2) avoid impact to cultural resources, (3) restore disturbed areas to their prior condition to the extent feasible and (4) provide offsite mitigation for those areas that could not be restored, (e.g., large trees cannot be grown over the pipeline, and above ground valve vaults and similar facilities occupy surface areas which must remain clear in perpetuity).

CCWA's commitment to environmental protection resulted in a project which was virtually undetectable to the public just one year after completion due to successful revegetation efforts.

When the CCWA Board of Directors approved construction of the 42-mile CCWA pipeline, it included a number of conditions. One condition was to require each of the CCWA project participants to commit that its SWP water Table A Amount will be used first to offset its proportionate share of groundwater overdraft and then to improve water quality for its consumers. (Any remaining water would be used for future growth consistent with community general plans.) Thus, SWP water is providing the "ultimate" environmental benefit by reducing groundwater overdraft in a number of areas throughout the county.



Each Santa Barbara County project participant is a water purveyor or user located in Santa Barbara County (see Figure 4).

Table 2
CCWA Project Participant Table A Amounts

<u>Agency</u>	<u>Table A Amount</u> ¹
City of Buellton	578
Carpinteria Valley Water District	2,000
Goleta Water District	4,500
City of Guadalupe	550
La Cumbre Mutual Water Company	1,000
Montecito Water District	3,000
Morehart Land Company	200
City of Santa Barbara	3,000
Santa Barbara Research Center	50
City of Santa Maria	16,200
Santa Ynez RWCD, ID#1	2,000
Southern California Water Company	500
Vandenberg Air Force Base	<u>5,500</u>
TOTAL	39,078²

¹ In acre-feet per year.

² The amounts do not include CCWA's 3,908 acre-feet per year "drought buffer" Table A Amount and 2,500 acre-feet per year additional Table A Amount held by Goleta Water District.



Figure 4 – Location Map for Santa Barbara County Project Participants

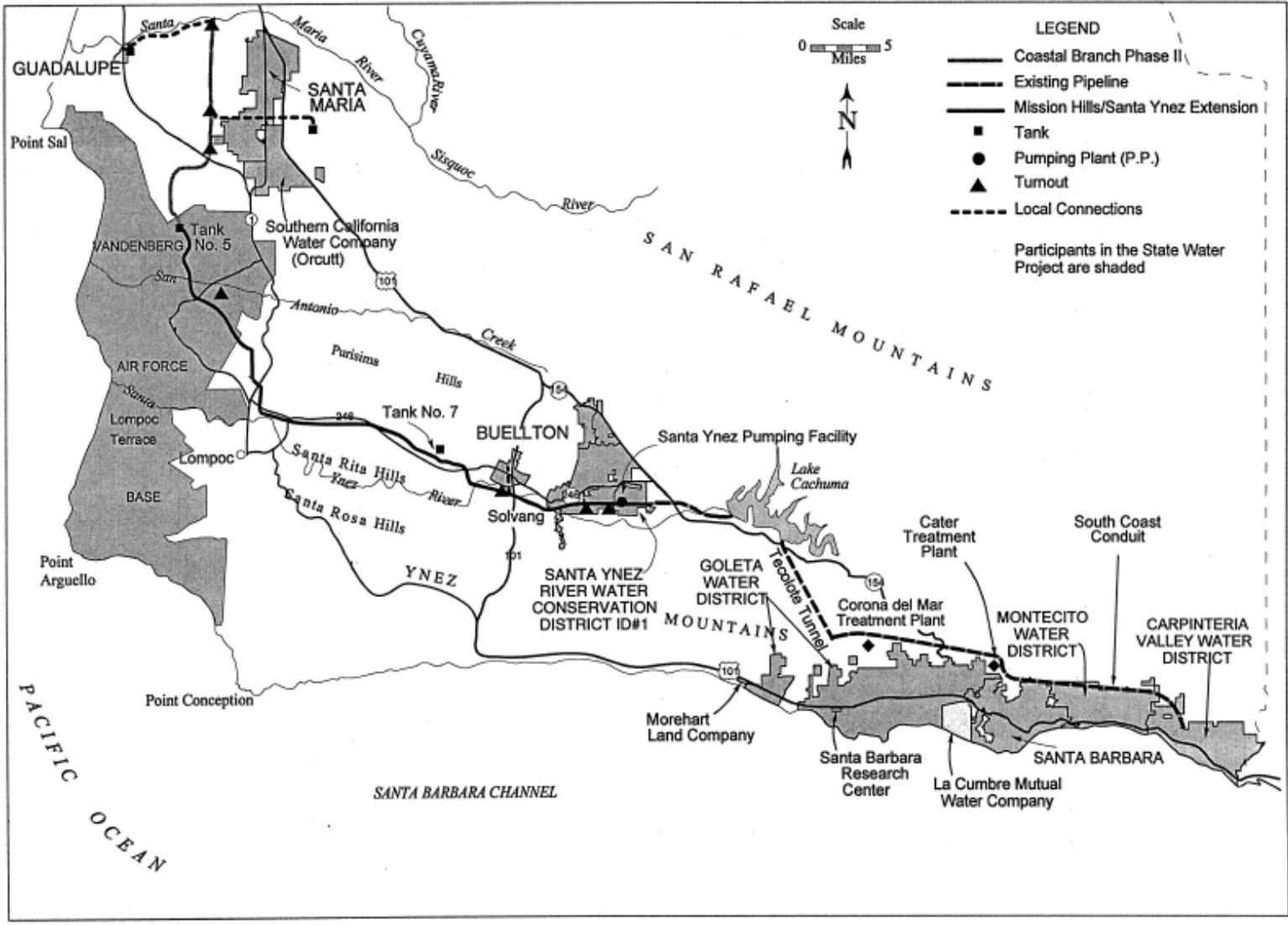
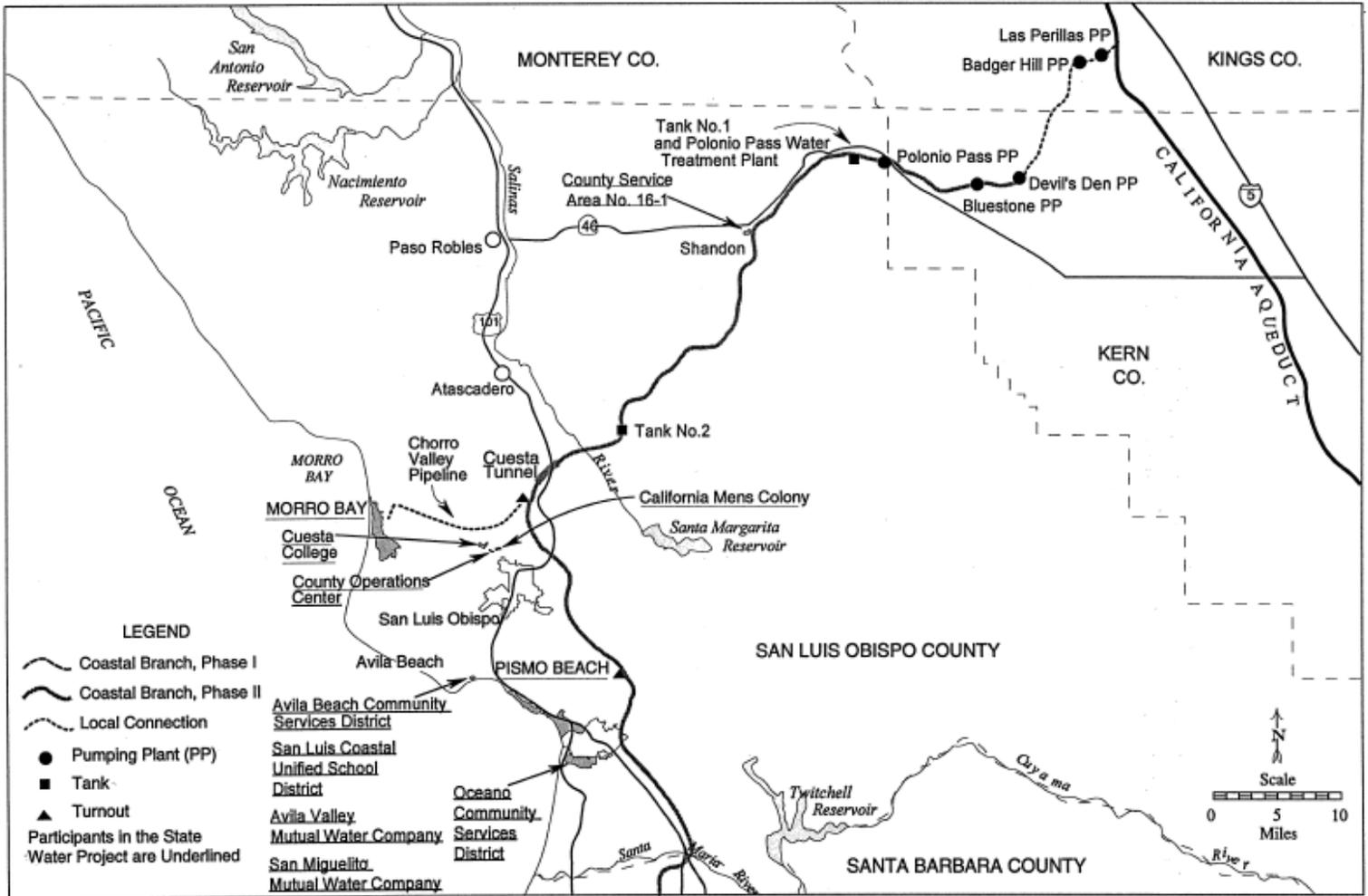




Figure 5 - Location Map for San Luis Obispo County Water Purchasers





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Each San Luis Obispo County water purchaser is a water purveyor or user located in San Luis Obispo County which has contractual rights from SLO County to receive water from the SWP (see Figure 5).

**Table 3
San Luis Obispo County Water Purchaser Table A Amounts**

<u>Agency</u>	<u>Table A Amount</u>
Avila Beach Community Services District	100
Avila Valley Mutual Water Company, Inc.	20
California Men's Colony (State)	400
County of San Luis Obispo C.S.A. No. 16-1	100
County of San Luis Obispo (Operations Center and Regional Park)	425
City of Morro Bay	1,313
Oceano Community Services District	750
City of Pismo Beach	1,240
San Luis Coastal Unified School District	7
San Miguelito Mutual Water Company	275
San Luis Obispo County Community College District (Cuesta College)	<u>200</u>
TOTAL	4,830



WATER SOURCES

Water Code

Section 10631.

A plan shall be adopted in accordance with this chapter and shall do all of the following:

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same 5-year increments [to 20 years or as far as data is available.]

CCWA's sole water supply is imported water from the State Water Project. As such, it is subject to natural and man-made forces, ranging from drought and earthquakes to environmental regulations and water rights determinations. Some of the challenges facing California with respect to importing water include:

- A major earthquake could damage the California Aqueduct
- Questionable integrity of the levee system within the Bay-Delta.
- The demand for water used for environmental purposes is increasing, especially in the San Francisco Bay/Sacramento-San Joaquin Bay Delta (Bay-Delta), reducing the ability to convey water through the Central Valley Project or the State Water Project.
- Threats to infrastructure security

CCWA's Water Supply Agreements with each of its project participants stipulate that imported State water will be a supplemental source of water. Its first use must be to reduce ground water overdraft. Only after that condition has been satisfied, can State water be utilized for planned growth.

In February 1963, The Santa Barbara County Flood Control and Water Conservation District (SBCFC&WCD) and the San Luis Obispo County Flood Control and Water Conservation District (SLOFC&WCD) entered into a 75 year agreement with the Department of Water Resources (DWR). SWP water originates within the Feather River watershed, is captured in Lake Oroville, and flows via the Sacramento-San Joaquin Delta, the California Aqueduct and the Coastal Branch Extension into CCWA's treatment and conveyance facilities.

Originally, SBCFC&WCD requested 57,700 acre-feet of water annually. In 1980, Santa Barbara County water purveyors requested and agreed to pay for 45,486 acre-feet and SBCFC&WCD, with the concurrence of DWR, suspended the remaining 12,214 acre



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feet. In 1994, Santa Barbara County water purveyors, now part of CCWA, agreed to take 39,078 acre-feet with an additional 3,908 acre-feet of drought buffer. Goleta Water District took an additional 2,500 acre-feet of drought buffer to further firm up its supply.

SLOCFC&WCD originally requested 25,000 acre-feet annually. In 1991, it decided, however, to participate in the treatment and conveyance facilities for 4,830 acre-feet only. The remaining 20,170 acre-feet remains as a drought buffer to firm up supplies.

Because CCWA is connected to the State water system, it may utilize the system for transfers to and from other water districts, exchanges, banking, off-site storage, etc. This connection to the rest of the State is of immense value to CCWA project participants as it provides opportunities to increase reliability and supplement other supplies.



WATER SOURCES – GROUNDWATER

Water Code

Section 10631.(b)

If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

- (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.*
- (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.*
- (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*
- (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.*

CCWA does not currently use groundwater as a supply source. It does support the efforts of its project participants to reduce overdraft, implement conjunctive use projects and groundwater storage and banking programs. As described in the previous section, CCWA member agencies must first offset groundwater overdraft with SWP water, before using their allocations to serve new customers.



2005 Urban Water Management Plan

Information regarding groundwater supplies being used by CCWA project participants can be found in the individual UWMPs prepared by these agencies. Information about all groundwater resources in Santa Barbara County is contained in the 2004 Santa Barbara County Groundwater Report prepared by the County Water Agency, and can be downloaded from their website at

<http://www.countyofsb.org/pwd/water/downloads.htm>.

Additionally, San Luis Obispo County groundwater information including the Nipomo Mesa Groundwater Resource Capacity Study, Integrated Regional Water Management Plan and the Paso Robles Groundwater Basin Study can be found at

<http://www.slocountywater.org/reports/index.htm>.



RELIABILITY OF SUPPLY

Water Code
Section 10631
A plan shall be adopted in accordance with this chapter and shall do all of the following:
(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable. Provide data for each of the following: (1) An average water year, (2) A single dry water year, (3) Multiple dry water years.

CCWA is a SWP contractor (through SBCFC&WCD) with an annual contractual Table A Amount of 45,486 acre-feet. SLOCFC&WCD is also a SWP contractor with an annual Table A Amount of 25,000 acre-feet. Table A Amount (formerly referred to as “entitlement”) is named for “Table A” in each SWP Contractor’s Water Supply Contract. It contains an annual buildup in Table A Amounts of SWP water, from the first year of the Water Supply Contract through a specific year, based on growth projections made before the Water Supply Contract was executed. For most Contractors, the maximum annual Table A Amount was reached in 1990, although both CCWA and SLOCFC&WCD did not receive SWP water until 1997. The total of all SWP Contractors’ maximum Table A Amounts is currently about 4.17 million acre-feet per year. CCWA treats and delivers this imported water to **SLOCFC&WCD** and each of its project participants through both State and local facilities.

Table 10
Historical Total SWP Deliveries

Year	Allocation	Delivery Amt. CCWA (af)	Delivery Amt. SLOCFC&WCD (af)
1997	100%	7,462	228
1998	100%	18,618	3,592
1999	100%	20,110	3,770
2000	90%	22,742	2,963
2001	39%	18,946	4,283
2002	70%	27,636	4,335
2003	90%	26,970	4,451
2004	90%	29,705	4,165



Table 11
SWP Supply Projections through 2030

Year	2005	2010	2015	2020	2025	2030
CCWA Request (af)	45,486	45,486	45,486	45,486	45,486	45,486
SLOCFC&WCD Request (af)	25,000	25,000	25,000	25,000	25,000	25,000

Each Contractor annually submits by October 1st of each year a request to DWR for water delivery in the following calendar year, in any amount up to the Contractor's full Table A Amount. The Water Supply Contracts provide that, in a year when DWR is unable to deliver total Contractor requests, deliveries to all Contractors will be reduced, in accordance with specified water allocation rules. The process results in deliveries that equal total available supply for that year. Some Contractors have never requested delivery of their full Table A amounts as a result of factors such as less-than-planned water demand, availability of other water supplies, and water conservation efforts that have held demand below initial demand projections for full contract amounts. Other Contractors order their full Table A Amounts nearly every year. The amount of actual water available to be delivered by DWR varies from year to year based on a combination of hydrologic conditions, water available in SWP storage reservoirs, and environmental regulations in the San Francisco Bay/Sacramento-San Joaquin River Delta. SWP water deliveries are subject to reduction when dry conditions occur in northern California.

In May 2003, DWR released its most recent State Water Project Delivery Reliability Report. The report is intended to assist SWP contractors in assessing the adequacy of the SWP component of their overall supplies. The analyses contained in the report conclude that the SWP, using existing facilities operated under current regulatory conditions, and with all contractors asking for their full Table A Amount, could deliver 76 percent of total Table A Amounts on a long-term average basis.

Updated SWP Reliability Analysis – 2005

On May 25, 2005, DWR informed the SWP Contractors that it was in the process of updating the Reliability Report and provided a recommended set of analyses to be used for preparing 2005 UWMPs. These updated analyses indicate that the SWP, using existing facilities operated under current regulatory conditions, and with all contractors asking for their full Table A Amounts in most years, could deliver 77 percent of the total Table A Amounts on a long-term average basis. These most recent analyses also project that, SWP deliveries during multiple-dry year periods would be about 25 to 40 percent of Table A Amounts, and possibly as low as 5 percent of Table A Amounts during an unusually dry single year. During wetter years, or about 25 percent of the time, 100 percent of full Table A Amounts are projected to be available.



2005 Urban Water Management Plan

The following two tables summarize the reliability of SWP water supplies during average/normal, single-dry, and multiple-dry years.

Table 12
Water Available to CCWA and SLOCFC&WCD During Average/Normal Years

	2005	2010	2015	2020	2025	2030
% of Table A Amount	69%	71%	73%	75%	77%	77%
CCWA (af)	31,385	32,295	33,205	34,115	35,024	35,024
% available to CCWA	80%	83%	85%	87%	90%	90%
SLOCFC&WCD (af)	17,250	25,001	18,250	18,750	19,250	19,250
% available to SLOCFC&WCD	>100%	>100%	>100%	>100%	>100%	>100%

Notes:

(1) The percentages of Table A Amount projected to be available are taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Supplies are calculated by multiplying CCWA's Table A Amount of 45,486 af and SLOCFC&WCD's 25,000 af by these percentages. Note, however, that CCWA has only 39,078 af of Treatment plant and pipeline capacity and SLOC has only 4,830 af

Table 13
Dry Year Supply Reliability ⁽¹⁾

Contractor	Single Dry Yr. ⁽²⁾	Multiple Dry Yrs. ⁽³⁾
2005		
CCWA (af)	1,819	14,556
% of Table A	4%	32%
SLOCFC&WCD (af)	1,000	8,000
% of Table A	4%	32%
2025-2030		
CCWA (af)	2,274	15,010
% of Table A	5%	33%
SLOCFC&WCD (af)	1,250	8,250
% of Table A	5%	33%

Notes:

(1) The percentages of Table A Amount projected to be available are taken from Table 6-5 of DWR's "Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report" (May 2005). Supplies are calculated by multiplying CCWA's Table A Amount of 45,486 af and SLOCFC&WCD's 25000 af by these percentages.

(2) Based on the worst case historic single dry year of 1977.

(3) Supplies shown are annual averages over four consecutive dry years, based on the worst case historic four-year dry period of 1931-1934 as stated in the most recent DWR SWP Delivery Reliability Report.

The above tables do not reflect the additional water available through exchanges with other water contractors, purchases of water through DWR dry year water purchase programs, short term water transfers through DWR's Turnback Pool programs and groundwater recharge programs operated by some CCWA project participants. In any given year, additional water can be made available through the SWP system for the incremental cost of purchasing or exchanging the water from others in the State.



2005 Urban Water Management Plan

Additionally, retail agencies use SWP water delivered through CCWA as a supplemental water supply to augment other surface and groundwater supplies. There does not appear to be any statistical correlation between droughts that would affect the SWP watersheds and those that would affect the watersheds of Santa Barbara and San Luis Obispo Counties. Several CCWA project participants have also invested in water reclamation (recycling) projects, desalination, water transfers, exchanges, conservation measures and conjunctive use projects to increase the reliability of their overall water portfolios.



DEMAND MANAGEMENT MEASURES

Water Code

Section 10631.

(f) Provide a description of the supplier's water demand managements.

This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following [listed in the accompanying section]:

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the suppliers' service area, and the effect of such savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, which offer lower incremental costs than expanded or additional water supplies.

(h) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to the council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California", dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).

CCWA is a Joint Powers Authority with the sole mission "to supply Santa Barbara and San Luis Obispo Counties with reliable, high quality supplemental water." Our mission is to maximize imported deliveries of SWP water for the benefit of our project



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participants. CCWA recognizes the importance and role of water conservation, and demand management, as a priority in any water resource strategy and supports the efforts of its retail agencies to implement programs for their customers. CCWA is a member of the California Urban Water Conservation Council (CUWCC).

Santa Barbara County

In Santa Barbara County the Santa Barbara County Water Agency (Water Agency) implements regional water demand management measures (i.e. public outreach, education, data collection, joint purchase and multi-agency grant projects, etc.) and provides technical support to local water purveyors implementing their own programs (i.e. residential water evaluations, water rate programs, system water audits, etc.) The Water Agency is one of the founding members of the California Urban Water Conservation Council (CUWCC) and is the umbrella organization for water conservation activities in Santa Barbara County. The Water Agency provides oversight for the demand management measures for all CCWA project participants in Santa Barbara County. The Water Agency manages the Regional Water Efficiency Program, which was established in December 1990 to promote the efficient use of urban and agricultural water supplies in Santa Barbara County, and to provide information and assistance to the eighteen local water purveyors within the county. The Program provides coordination for cooperative efforts among purveyors, acts as a clearinghouse for information on water efficiency technology, and monitors local, state and national legislation concerning efficient water use. The Program serves around 400,000 county residents. The following information was taken from the Water Agency's 2004 report to the CUWCC which identifies the wholesale agency measures being implemented as well as other sources of information regarding demand management measures (The full 2004 report to CUWCC can be found the in Appendices of this plan).

Beginning in 2006, CCWA intends to become an active participant with the Water Agency to assist retailers receiving State water in implementing Demand Management Measures. It will also provide leadership and assistance to retailers receiving State water in San Luis Obispo County.

Water Agency Demand Management Measures

DMM 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

The Water Agency is neither a water wholesaler nor retailer, and therefore does not have direct access to residential water customer accounts in the County. The Water Agency collects production surveys for each of the water districts within the County to provide summary information on residential water use. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.



DMM 2 – Residential Plumbing Retrofit

The Water Agency is neither a water wholesaler nor retailer, and does not facilitate retrofits for water customers. The Agency does provide staffing support, funding and materials to local water purveyors and assists them in the implementation of their own conservation programs through the Regional Water Efficiency Program. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 3 – System Water Audits, Leak Detection and Repair

The Water Agency is neither a water wholesaler nor retailer. Therefore, the Agency does not have a distribution system. The Agency does provide staffing support, funding and materials to local water purveyors and assists them in the implementation of their own conservation programs through the Regional Water Efficiency Program. The Agency encourages the water purveyors to conduct system audits and provides technical materials, legislative updates and workshops regarding leak detection and repair. CCWA monitors its system water losses through its meters. All water entering or exiting the system is metered and all meters are calibrated biannually. The entire pipeline route is also physically inspected on an annual basis. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 4 – Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections

The Water Agency is neither a water wholesaler nor retailer, and therefore does not have authority to modify water rates. The Water Agency provides technical support to water purveyors establishing retrofit programs in their service areas. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 5 – Large Landscape Conservation Programs and Incentives

Though the Water Agency does not have any direct customers, the Water Agency helps to fund large landscape irrigation evaluations conducted by the Cachuma Resource Conservation District. The County also supports a regional ET controller installation program with partnering water districts.

DMM 6 – High Efficiency Washing Machine Rebate Programs

The Water Agency is neither a water wholesaler nor retailer. The Water Agency provides technical support to water purveyors establishing rebate programs in their service areas. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 7 – Public Information Programs

On behalf of, and in cooperation with, water retailers in Santa Barbara County, the Water Agency conducts many public information programs. These include the Be Water Wise Campaign, a radio and newspaper ad campaign, Water Awareness Month and the Earth Day Fair in May, Santa Maria River Levee Bike Path Interpretive Signs, a quarterly



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newsletter on water conservation activities, and the promotion and distribution of multiple publications to the public at events and workshops.

DMM 8 – School Education Programs

On behalf of, and in cooperation with, water retailers in Santa Barbara County, the Water Agency offers presentations to elementary and junior high classrooms throughout the County on water supply and water conservation. Over 3,000 students received presentation in 2003-2004. The Water Agency also facilitates a High School Video Contest on Water Awareness.

DMM 9 – Conservation Programs for Commercial, Industrial and Institutional Accounts

Though the Water Agency does not have any direct customers, the Water Agency and partnering water districts implement a rebate program for CII customers that replace high water use toilets, urinals, and clothes washers. The Water Agency does not perform retrofits, but provides staff and financial support to partnering districts for this program. The Water Agency also manages a program for Lodging Industry entities in Santa Barbara County, providing educational and training materials for employees and guests.

DMM 10 – Wholesale Agency Assistance Programs

The Water Agency provides staffing support, funding and materials to local water purveyors and assists them in the implementation of conservation programs through the Regional Water Efficiency Program. The Program provides coordination for cooperative efforts among purveyors, acts as a clearinghouse for information on water efficiency technology, and monitors local, state and national legislation concerning efficient water use. The Water Agency partners on multiple conservation programs with several water districts, as explained in other demand management measures detailed in this section. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 11 – Conservation Pricing

Although the Water Agency is neither a water wholesaler nor retailer, the Agency encourages the water purveyors in the County to adopt rate structures that support conservation and provides technical materials, legislative updates and workshops regarding rate structures. An annual survey of water rates in Santa Barbara County is distributed to local water purveyors. The information is compiled by staff and sent to all participants. Information about water rates in other areas has also been collected and made available to local water purveyors. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 12 – Conservation Coordinator

Although the Santa Barbara County Water Agency is neither a water wholesaler nor retailer, the Agency does provide staffing support to local water purveyors. A Coordinator and two Program Specialists provide a total of approximately 65 hours per



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week of staff support. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 13 – Water Waste Prohibition

The Water Agency is not a retailer or wholesalers of water and does not have the authority to enact water waste prohibitions. The Water Agency works with water purveyors to encourage wise water use and the reduction of wasted water. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 14 – Residential Ultra-low Flush Toilet Replacement Program

Ultra-low flush toilet replacement programs have been implemented by the individual retail water agencies in the Santa Barbara County area. The Water Agency is not a retailer or wholesaler of water, and does not have any current programs on residential toilet replacement programs.

Additional information on demand management measures can be found in retailer UWMPs and in the Appendix of this plan.



San Luis Obispo County

SLOCFC&WCD (District) primarily relies on its individual water retailers to take appropriate demand management measures. Although most communities are small and fall below the threshold requirement for the preparation of an UWMP, they are quite active in water conservation. Each of these communities has taken different approaches that are most appropriate to their situation. The details of these measures are described within documents prepared by those agencies. For the larger communities these measures are also described within their individual UWMP.

The District, however, does encourage conservation and where feasible does cooperate with these individual retailers. The District is also currently investigating new ways to promote conservation. These efforts are more fully described in the District's Integrated Regional Water Master Plan.

As a wholesale agency with no direct customers, the District has limited authority to implement the demand management measures described within the water code.

Beginning in 2006, CCWA intends to become an active participant with the District to assist retailers receiving State water in implementing Demand Management Measures. It will also provide leadership and assistance to retailers receiving State water in Santa Barbara County.

District Demand Measurement Measures

DMM 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

The District does not have any direct customers, and does not have the authority to conduct water audits/surveys for customers within the contracting agencies' service areas. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 2 – Residential Plumbing Retrofit

The District does not have any direct customers or the authority to conduct plumbing retrofits for customers within the contracting agencies' service areas. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 3 – System Water Audits, Leak Detection and Repair

The distribution system is monitored monthly as part of the operations reporting process. As part of this process, losses due to leaks and other causes are measured. The average loss factor in the system is approximately 3.6%. CCWA monitors its system water losses through its meters. All water entering or exiting the system is metered and all meters are calibrated biannually. The entire pipeline route is also physically inspected on an annual



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basis. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 4 – Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections

All connections between the County and its contracting agencies are metered. The District does not have the authority to meter with commodity rates within the service areas of its contracting agencies. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 5 – Large Landscape Conservation Programs and Incentives

The District has funded and promoted the use of this service to large landscapes (schools, parks, golf courses, etc.) throughout the County. This program is performed in cooperation with the three Resource Conservation Districts in the region. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 6 – High Efficiency Washing Machine Rebate Programs

This measure is the responsibility of the individual water agencies. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 7 – Public Information Programs

In cooperation with water retailers in San Luis Obispo County, the District funds and supports many public information programs. These include the spring newsletter prepared by the Partners in Water Conservation and the distribution of pamphlets in various public events. Programs also include participation in low water landscape exhibits at the annual Home Show and Mid-State Fair. The District also participates in a public information program to distribute soil moisture meters to home owners. Additional public information on conservation is given as part of the “Sammy the Steelhead” water quality programs. Radio and newspaper ad campaigns are often considered but have been minimally effective and have been recently dropped for the time being. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 8 – School Education Programs

The District does not conduct school education programs regarding water resources or conservation. These programs are conducted at the local level by contracting water agencies.

DMM 9 – Conservation Programs for Commercial, Industrial and Institutional Accounts

As a wholesaler, the District does not have the authority to conduct commercial and industrial water conservation programs within the service areas of its contracting



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agencies. These audits must be provided at the local level by the individual retail agencies. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 10 – Wholesale Agency Assistance Programs

The District has not signed the statewide MOU for urban water conservation. The District works with its contracting water agencies to determine the appropriate role for the District to play in helping local agencies implement the best management practices. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 11 – Conservation Pricing

As a wholesaler, the District does not have the authority to set rates for retail water/sewer customers. This authority lies with the individual retail water agencies and cities. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 12 – Conservation Coordinator

The District does not currently staff a full-time water conservation coordinator position because many conservation measures and practices are out of the District's jurisdiction or are the responsibility of individual retail agencies. Some of the local retail agencies have a water conservation coordinator on staff, such as Paso Robles, Tempton, Atascadero, San Luis Obispo, Pismo Beach and Grover Beach. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 13 – Water Waste Prohibition

As a wholesaler, the District does not have the authority to implement water waste prohibitions for retail water customers. This is the responsibility of the individual retail water agencies. Beginning in 2006, CCWA will provide leadership and assistance to retailers receiving State water.

DMM 14 – Residential Ultra-low Flush Toilet Replacement Program

Ultra-low flush toilet replacement programs are being implemented by the individual retail water agencies.

Additional information on demand management measures can be found in retailer UWMPs and in the District's IRWM.



EVALUATION OF DEMAND MANAGEMENT MEASURES NOT IMPLEMENTED

Water Code

Section 10631.5 The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

As described in the previous section CCWA is a Joint Powers Authority with the sole mission “to supply Santa Barbara and San Luis Obispo Counties with reliable, high quality supplemental water.” CCWA will continue to work with Santa Barbara and San Luis Obispo Counties to assure that its member agencies have the support and resources they need to conduct effective programs, to evaluate the measures they are implementing and conduct ongoing assessments of the measures they are not implementing.



PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

Water Code

Section 10631.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (l) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

During the last year, CCWA's Board of Directors asked CCWA staff to investigate methods of increasing SWP water during dry periods. CCWA staff have, or are in the process of:

- Studying the feasibility of acquiring additional SWP Table A Amount water to be utilized as a drought buffer amount
- Investigating out-of-district storage (either surface or ground water banking)
- Investigating banking opportunities within CCWA's and/or San Luis Obispo County's service area
- Increasing treatment plant capacity by getting State Department of Health Services permission to re-rate the plant filters to accept higher flows
- Studying CCWA pipeline capacity and what can be done to move more water when opportunities exist

In 2006, CCWA will initiate a study to determine the reliability needs of each of its project participants and the pros and cons of groundwater banking and conjunctive use opportunities throughout the State. This information will assist project participants in determining the cost and risks involved in increasing the overall reliability of SWP water as a supplemental source. Currently, CCWA project participants have a 10% drought



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buffer to increase reliability during dry periods. CCWA will investigate the feasibility and cost of increasing the drought buffer amount to approximately 33%.

Each project participant has a different need for SWP water as a supplemental supply and, as a result of the above outlined studies, will decide whether – and to what level – to participate in reliability enhancements. Thus, it is impossible, at this time, to estimate the single or multiple dry year benefits.



ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

Water Code
Section 10632
(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency’s water supply.

The minimum water supply available during the next three years would occur with a 3-year multiple dry-year event occurring between the years 2006 and 2008. According to DWR’s Excerpts from Working Draft of 2005 State Water Project Delivery Reliability Report, May 2005, in the worst case four year dry period, the SWP will still deliver 32% of its Table A Amount. Both Santa Barbara and San Luis Obispo Counties hold some of their Table A Amounts as drought buffer (Table A Amount water that does not have treatment plant or pipeline delivery capacity), so delivery amounts will be higher than the DWR allocation. Additionally, two Santa Barbara County project participants have an exchange agreement with the Dudley Ridge Water District that would allow them to bring in some additional water. The following table illustrates the estimate of minimum supply for the next three years.

Table 17
Minimum Water Supply Availability for the Next Three Years

County	Source	Table A Amount	Delivery Capability	Year 1	Year 2	Year 3
Santa Barbara	SWP	45,486	39,078	14,556	14,556	14,556
Santa Barbara	Dudley Ridge Exchange					725
Santa Barbara	SWP Carryover			5,000		
TOTAL				19,556	14,556	15,821
% of Delivery Capability				50%	37%	40%
San Luis Obispo	SWP	25,000	4,830	4,830	4,830	4,830
TOTAL				4,830	4,830	4,830
% of Delivery Capability				100%	100%	100%



ADOPTION AND IMPLEMENTATION OF UWMP

Water Code

Section 10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing, as amended by the Act that adds this section, in determining whether the urban water supplier is eligible for funds made available pursuant to any program administered by the department.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall file with the department and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be filed with the department and any city or county within which the supplier provides water supplies within 30 days after adoption.

- The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the outstanding elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has filed its plan with the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.*

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.



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1. A copy of the adoption resolution is attached to this UWMP as Appendix A.
2. CCWA has reviewed and endorses the DMM implementation plan.
3. CCWA will provide its 2005 UWMP to DWR, the Santa Barbara County Water Agency, the SLOCFC&WCD and each project participant within 30 days of adoption.
4. CCWA recognizes that it must file copies of amendments or changes to the 2005 UWMP with the Santa Barbara County Water Agency, the SLOCFC&WCD and each project participant within 30 days of adoption.
5. CCWA will make the 2005 UWMP available for public review within 30 days of filing it with DWR.
6. CCWA continually encourages the involvement of all stakeholders in the affairs of water management. CCWA meets regularly with its project participants through the Operating Committee, in which the public is invited to participate, and solicits input on a variety of tasks and issues. Each month, CCWA holds a Board meeting, in which the public is invited to participate, and comment on issues related to the conduct of CCWA's business. In addition, CCWA maintains a website containing key reports for public use and to make available contacts within the agency should there be any issues. CCWA will hold a public hearing on its 2005 UWMP and will notify all stakeholders involved using standard modes of notification.



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APPENDIX A

Resolution of the CCWA Board of Directors Adopting the 2005 CCWA Urban Water Management Plan



RESOLUTION NO. 05-04

RESOLUTION ADOPTING THE 2005 URBAN WATER MANAGEMENT PLAN FOR THE CENTRAL COAST WATER AUTHORITY AS REQUIRED BY THE CALIFORNIA URBAN WATER MANAGEMENT PLANNING ACT, CALIFORNIA WATER CODE DIVISION 6, PART 2.6

WHEREAS, pursuant to California Water Code section 10652, the preparation and adoption of an Urban Water Management Plan is exempt from the requirements of the California Environmental Quality Act (California Public Resources Code section 21000, et seq.); and

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-84 Regular Session, and as amended subsequently, which mandates that every retail and wholesale water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the Central Coast Water Authority (CCWA) is a water wholesaler providing water to retail water purveyors that serve a population of over 350,000 people; and supply over 30,000 acre-feet per year of State Water Project Water; and

WHEREAS, the Plan must be adopted by December 31, 2005, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the CCWA circulated said Plan among local retail water suppliers contracted to receive water from CCWA; and

WHEREAS, the CCWA conducted two properly noticed public hearings regarding said Plan on November 7, 2005 and November 14, 2005; and

WHEREAS, CCWA shall file said Plan with the California Department of Water Resources by January 21, 2006;

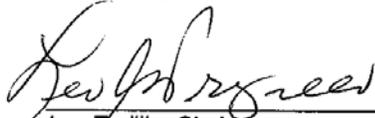
NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Central Coast Water Authority:

1. That the 2005 Urban Water Management Plan is hereby approved and adopted.
2. That the Executive Director of CCWA is hereby authorized and directed to submit the 2005 Urban Water Management Plan to the Department of Water Resources within 30 days of execution of this Resolution.



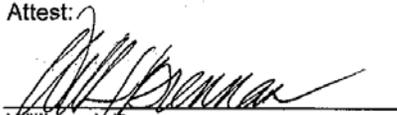
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I certify that the foregoing Resolution No. 05-04 was adopted by the Board of Directors of the Central Coast Water Authority at a meeting held December 22, 2005.


 Leo Trujillo, Chairman

[Seal]

Attest:


 William J. Brennan
 Secretary to the Board of Directors

	VOTING PERCENTAGE	AYE	NAY	ABSTAIN	ABSENT
City of Buellton	2.21%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carpinteria Valley Water District	7.64%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Goleta Water District	17.20%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City of Guadalupe	1.15%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Montecito Water District	9.50%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City of Santa Barbara	11.47%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City of Santa Maria	43.19%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Santa Ynez River Water Conservation District, Improvement District No. 1	7.64%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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APPENDIX B

**Santa Barbara County Water Agency
2004 Report to the
California Urban Water Conservation Council**



BMP 03: System Water Audits, Leak Detection and Repair

Reporting Unit: **Santa Barbara County Water Agency** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- 1. Has your agency completed a pre-screening system audit for this reporting year? no
- 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production:
 - a. Determine metered sales (AF) 0
 - b. Determine other system verifiable uses (AF) 0
 - c. Determine total supply into the system (AF) 0
 - d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. 0.00
- 3. Does your agency keep necessary data on file to verify the values used to calculate verifiable uses as a percent of total production? no
- 4. Did your agency complete a full-scale audit during this report year? no
- 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? no
- 6. Does your agency operate a system leak detection program? no
 - a. If yes, describe the leak detection program:

B. Survey Data

- 1. Total number of miles of distribution system line. 0



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2. Number of miles of distribution system line surveyed. 0

C. System Audit / Leak Detection Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as." Santa Barbara County Water Agency is neither a water wholesaler nor retailer. Therefore, the Agency does not have a distribution system. The Agency does provide staffing support; funding and materials to local water purveyors and assists them in the implementation of their own conservation programs through the Regional Water Efficiency Program. The Regional Water Efficiency Program was established in December 1990 to promote the efficient use of urban and agricultural water supplies in Santa Barbara County, and to provide information and assistance to the eighteen local water purveyors within the county. The Program provides coordination for cooperative efforts among purveyors, acts as a clearinghouse for information on water efficiency technology, and monitors local, state and national legislation concerning efficient water use. The Program serves around



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400,000 county residents. Three Program Specialists dedicate approximately 65 hours of staff time per week in support of this program. In reference to BMP 03, the Agency encourages the water purveyors to conduct system audits and provides technical materials, legislative updates and workshops regarding leak detection and repair.

E. Comments



BMP 07: Public Information Programs

Reporting Unit:

Santa Barbara County Water Agency

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? yes

a. If YES, describe the program and how it is organized.

The Santa Barbara County Water Agency oversees the Regional Water Efficiency Program for the county. A number of the Program's activities fulfill - on a regional level - the obligations for best management practices (BMPs) in the statewide California Urban Water Conservation Council Memorandum of Understanding (MOU) and/or the Bureau of Reclamation's water conservation criteria. The County Water Agency is a signatory to the MOU and has prepared a plan to meet the Bureau's water conservation criteria. Many of the regional activities also assist individual water purveyors to satisfy their own conservation goals under the MOU and Bureau Criteria. Be Water Wise Advertising Campaign The Be Water Wise advertising campaign, which is sponsored by a number of local water purveyors, began on August 4, 2003. The whimsical ads that promote water use efficiency feature plants complaining about their bloated roots caused by their owners over watering and the lackadaisical Dave who waters a number of inanimate objects including his driveway and mailbox throughout his neighborhood due to a mismanaged irrigation system. The campaign was designed to raise awareness of how many of us overwater our landscapes and to highlight tools that are available to irrigate more efficiently. The Be Water Wise Campaign includes radio spots, newspaper advertisements and television commercials highlighting the importance of watering wisely. The ads direct local residents to visit www.bewaterwise.com for tools on efficient irrigation. A feature of the website is a landscape watering calculator that allows residents to enter specific information on their landscaping and will generate a recommended irrigation schedule based on historical local weather data. Local sponsors of this campaign include the Santa Barbara County Water Agency, City of Santa Barbara, Goleta Water District, California Cities Water Company, Carpinteria Valley Water District, Montecito Water District, La Cumbre Mutual Water Company, Vandenberg Village Community Services District, Los Alamos Community Services District, and Cuyama Community Services District. During the advertising campaign, the number of visitors to our website increased by an average of 80% per month. During August, visits increased by only 8%, but in September and October visits were up by 111% and 121% respectively. In addition, 590 visits to our watering calculator took place during the campaign. Visits to the sbwater.org and the watering calculator remained well above average through December of 2003. The program partners and KRUZ also co-sponsored a Waterwise Home and Garden Makeover during the campaign. The makeover included plant and irrigation



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installation and maintenance from EnviroScaping, irrigation equipment from All Around Irrigation, design and construction assistance from Common Ground Landscape Architecture & Planning, a Weather TRAK ET Controller from Hydpoint Data Systems, landscape materials from AgriTurf Supplies Inc., waterwise native plants from Seaside Gardens and books on greywater and principles of ecological design from Oasis designs. Ms. Rosa Torres was selected as the lucky winner from Santa Barbara. Santa Maria River Levee Bike Path Interpretive Signs Water Resources staff completed the production and installation of new interpretive signs for the Santa Maria Levee Bike Path. The signs, which were installed in June 2003, cover a number of topics including water supply, flood control and water quality and have been placed at intervals along the bike path, so that riders can learn about local water issues as they cruise the levee.

Water Awareness Month: Staff participated with local water purveyors in this annual event, which is sponsored by the California Water Awareness Committee. The County Board of Supervisors adopted a resolution declaring May as Water Awareness Month in Santa Barbara County. Advertisements reminding local residents to conserve water and encouraging them to participate in local events were placed in number of local newspapers. Events included tours of the City's desalination facility and the Alice Keck Park Memorial Garden, and Goleta Water Awareness Day. In addition, Water Awareness Month displays were showcased in both north and south county facilities with information on local water supplies, water conservation and a mural produced by the Girl Scouts of Tres Condados who earned their Water Drop Patches in 2003. Goleta Water District also held their annual Water Awareness Day and Montecito Water District held an Open House. Advertising for each of these events was placed in the Santa Barbara Independent, the Montecito Journal, the Santa Barbara News Press, the South Coast Beacon and the Carpinteria Coastal View. This year's sponsors included the City of Santa Barbara, Carpinteria Valley Water District, the Santa Barbara County Water Agency, Montecito Water District, Goleta Water District and La Cumbre Mutual Water Company.

Earth Day Fair: Staff coordinated local purveyor participation in this annual event in Santa Barbara, which took place on April 18, 2004. Staff displayed information on the Green Gardener Program and a Water Trivia game, and also put together a children's activity booth, which included fishing for water facts, a tooth brushing demonstration to show how kids could save water while brushing their teeth with recycled toothbrushes for prizes and a mural decorating table. Staff also participated in the Flex Your Power promotion of High Efficiency Clothes Washers and coordinated a prize giveaway in which Santa Barbara Family Care Center won a Maytag Neptune washer and dryer set. Approximately 5,000 people attended the event. Sponsors for this event included the City of Santa Barbara, Goleta Water District, Montecito Water District, La Cumbre Mutual Water Company, and the Carpinteria Valley Water District. In addition, staff attended the Santa Maria Earth Day fair on April 24 with the toothbrush demonstration and the Green Gardener program display.

Girl Scouts Water Drop Patch Event Over 30 Girl Scouts from troops located in Santa Barbara, Ventura, Oxnard, Lompoc and Camarillo traveled to Santa Barbara on May 22nd for the 5th annual Water Drop Patch day extravaganza. This event is open to Brownies and Juniors in the Tres Condados Girl Scout region and explores the wonderful world of



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water. Topics covered included: the water cycle, local water supply, creek & ocean water pollution, watershed wildlife, water use & conservation and more. Door prizes were awarded to the first 25 girls to arrive at the event, and pizza gift certificates were given to the troops with the most girl attendees. The Water Drop Patch program was jointly developed by the United States EPA and the Girl Scout Council of the Nation's Capital. The purpose of the project is to encourage girls to: - Make a difference in their communities by becoming watershed and wetlands stewards. - Use their skills and their knowledge to educate others in their communities about the need to protect the nation's valuable water resources. - Explore the natural world to gain an interest in science and math. This event is sponsored by the Carpinteria Valley Water District, Goleta Water District, City of Lompoc, Montecito Water District, City of Santa Barbara, and Santa Barbara County Water Agency. A similar water badge activity will be held for Santa Barbara County Girl Scouts in the fall. The next Water Drop Patch day will be held on Saturday, June 25, 2005. Water of Santa Barbara County: Staff distributed these brochures to local water purveyors, teachers, students and other interested individuals and organizations and at all public events attended by Water Agency staff. Water Resources Brochure: This 3-color poster summarizes the water supplies and uses throughout the County. The brochure is available to the public at water district offices, public events such as Earth Day and at public presentations. County Water Connection Newsletter: Three newsletters were published in 2003/2004. The newsletter covers water efficiency, water supply, and pollution prevention in Santa Barbara County. The newsletter is distributed at not cost to over 200 water purveyors, public interest groups and other interested parties. Individuals or groups are added to the mailing list by request. Conservation Requests: The County assisted local purveyors and the public by providing information about efficient water use on request, and also provided technical assistance with water conservation program elements and implementation.

2. Indicate which and how many of the following activities are included in your public information program.

Public Information Program Activity	Yes/No	Number of Events
a. Paid Advertising	yes	6
b. Public Service Announcement	yes	9
c. Bill Inserts / Newsletters / Brochures	yes	21
d. Bill showing water usage in comparison to previous year's usage	no	
e. Demonstration Gardens	yes	0
f. Special Events, Media Events	yes	6
g. Speaker's Bureau	yes	3
h. Program to coordinate with other government agencies, industry and public interest groups and media	yes	



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B. Conservation Information Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	15000	45000
2. Actual Expenditures	32668	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments



BMP 08: School Education Programs

Reporting Unit: **Santa Barbara County Water Agency** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- 1. Has your agency implemented a school information program to promote water conservation? yes
- 2. Please provide information on your school programs (by grade level):

Grade	Are grade-appropriate materials distributed?	No. of class presentations	No. of students reached	No. of teachers' workshops
Grades K-3rd	yes	75	1637	1
Grades 4th-6th	yes	24	1611	1
Grades 7th-8th	yes	4	245	1
High School	yes	0	0	0

- 3. Did your Agency's materials meet state education framework requirements? yes
- 4. When did your Agency begin implementing this program? 12/10/1990

B. School Education Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	18000	15000
2. Actual Expenditures	7974	

C. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? No
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments



BMP 10: Wholesale Agency Assistance Programs

Reporting Unit:
Santa Barbara County Water Agency

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

1. Financial Support by BMP

BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded	BMP	Financial Incentives Offered?	Budgeted Amount	Amount Awarded
1	No			8	yes	10000	5039
2	No			9	yes	50000	9987
3	No			10	No		
4	No			11	No		
5	yes	60000	88827	12	No		
6	No			13	No		
7	yes	15000	27642	14	No		

2. Technical Support

- a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness? No
- b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements? No
- c. Has your agency conducted or funded workshops addressing:



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- | | |
|--|-----|
| 1) ULFT replacement | No |
| 2) Residential retrofits | No |
| 3) Commercial, industrial, and institutional surveys | No |
| 4) Residential and large turf irrigation | yes |
| 5) Conservation-related rates and pricing | No |

3. Staff Resources by BMP

BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP	BMP	Qualified Staff Available for BMP?	No. FTE Staff Assigned to BMP
1	yes	1	8	yes	1.6
2	yes	1	9	yes	1.6
3	yes	1	10	yes	1
4	yes	1	11	yes	1
5	yes	1.6	12	yes	1.6
6	yes	1	13	yes	1
7	yes	1.6	14	yes	1

4. Regional Programs by BMP

BMP	Implementation/ Management Program?	BMP	Implementation/ Management Program?
1	No	8	yes



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2	No	9	yes
3	No	10	No
4	No	11	No
5	yes	12	yes
6	No	13	No
7	yes	14	No

B. Wholesale Agency Assistance Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	286050	320000
2. Actual Expenditures	322228	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Santa Barbara County Water Agency is not a wholesale agency so the dollar amounts listed in the "Financial Support" section do not necessarily reflect monies given to other agencies, but the amounts budgeted for the Regional Water Efficiency Program. The Water Agency provides staffing support, funding and materials to local water purveyors and assists them in the implementation of their own conservation programs through the Regional Water Efficiency Program. The Program was established in December 1990 to promote the efficient use of urban and agricultural water supplies in Santa Barbara County, and to provide information and assistance to local water purveyors. The Program provides coordination for cooperative efforts among purveyors, acts as a clearinghouse for information on water efficiency technology, and monitors local, state and national legislation concerning efficient water use.

D. Comments



BMP 11: Conservation Pricing

Reporting Unit:

Santa Barbara County Water Agency

BMP Form Status:
100% Complete

Year:
2004

A. Implementation

Rate Structure Data Volumetric Rates for Water Service by Customer Class

1. Residential

- a. Water Rate Structure Service Not Provided
- b. Sewer Rate Structure Service Not Provided
- c. Total Revenue from Volumetric Rates \$0
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$0

2. Commercial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

3. Industrial

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

4. Institutional / Government

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

5. Irrigation

- a. Water Rate Structure



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- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

6. Other

- a. Water Rate Structure
- b. Sewer Rate Structure
- c. Total Revenue from Volumetric Rates \$
- d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources \$

B. Conservation Pricing Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	0	0
2. Actual Expenditures	0	

C. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? yes

a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

Although the Santa Barbara County Water Agency is not a water wholesaler nor retailer, the Agency does provide staffing support, funding and materials to local water purveyors and assists them in the implementation of their own conservation programs through the Regional Water Efficiency Program. The Regional Water Efficiency Program was established in December 1990 to promote the efficient use of urban and agricultural water supplies in Santa Barbara County, and to provide information and assistance to local water purveyors. The Program provides coordination for cooperative efforts among purveyors, acts as a clearinghouse for information on water efficiency technology, and monitors local, state and national legislation concerning efficient water use. A Coordinator, and two Program Specialists provide a total of approximately 65 hours per week of staff support. In reference to BMP 11, the Agency encourages the water purveyors in the County to adopt rate structures that support conservation and provides technical materials, legislative updates and workshops regarding rate structures. An annual survey of water rates in Santa Barbara County is distributed to local water purveyors. The information is compiled by staff and sent to all participants. Information about water rates in other areas has also been collected and made available to local water purveyors.

D. Comments



BMP 12: Conservation Coordinator

Reporting Unit: **Santa Barbara County Water Agency** BMP Form Status: **100% Complete** Year: **2004**

A. Implementation

- 1. Does your Agency have a conservation coordinator? yes
- 2. Is this a full-time position? yes
- 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program?
- 4. Partner agency's name:
- 5. If your agency supplies the conservation coordinator:
 - a. What percent is this conservation coordinator's position? 80%
 - b. Coordinator's Name Rory Lang
 - c. Coordinator's Title Regional Water Efficiency Program Coordinator
 - d. Coordinator's Experience and Number of Years 7 years running environmental programs
 - e. Date Coordinator's position was created (mm/dd/yyyy) 12/10/1990
- 6. Number of conservation staff, including Conservation Coordinator. 3

B. Conservation Staff Program Expenditures

	This Year	Next Year
1. Budgeted Expenditures	140000	150000
2. Actual Expenditures	125579	

C. "At Least As Effective As"

- 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? no
 - a. If YES, please explain in detail how your implementation of this BMP differs from Exhibit 1 and why you consider it to be "at least as effective as."

D. Comments

**California Red-legged Frog Survey Report
Long Pool of Santa Ynez River**

August 2009

Prepared for

**Central Coast Water Authority
255 Industrial Way
Buellton, CA 93427**

Prepared by

**Science Applications International Corporation
5464 Carpinteria Avenue, Suite K
Carpinteria, CA 93013**

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Introduction

Two segments of the pipeline that delivers State Water Project water to Lake Cachuma have become exposed within the Santa Ynez River floodplain between Bradbury Dam and the Highway 154 crossing (Figure 1). One exposed segment is located within an overflow channel that carries water only during high flows, such as when Lake Cachuma spills (Figure 2). It is approximately 220 feet from the Long Pool within the river. The second exposed segment is located in San Lucas Creek where it passes through the river floodplain to the active river channel (Figure 3). It is approximately 150 feet south of the active river channel. The Central Coast Water Authority (CCWA) plans to repair these segments so that the pipeline is no longer exposed.

The California red-legged frog is federally listed as threatened, and this species is known to be present in some locations along the river and in some of the tributaries. However, no reports of this species in the project area are known. Because suitable habitat appears to be present, particularly in the Long Pool, surveys to determine presence or absence of the species were conducted in accordance with the current (August 2005) U.S. Fish and Wildlife Service protocol.

Survey Methods

The survey protocol requires two day and four night surveys over a six-week period during the breeding season. The surveys must be a minimum of seven days apart, but the day surveys can be conducted on the same day as the night surveys. The Long Pool was visited on 25 March and 5 May 2009 to determine the best methods for conducting the surveys. Access to and walking along the bank of the pool was found to be infeasible due to dense vegetation growth on the bank that included willows (*Salix* spp.), mulefat (*Baccharis salicifolia*), blackberry (*Rubus ursinus*), and other species. Dense patches of California bulrush (*Scirpus californicus*) around much of the pool margin and a steep cliff on the north bank also limited access to the water's edge. Wading in the pool was also found to be infeasible due to the large cobble to boulder strewn bottom, water depth (sometimes over 3 feet), and size of the pool (approximately 1,700 feet long). Thus, use of a two-person kayak was determined to be the best method to survey the margin of the Long Pool. Binoculars (Cannon 8x25) were used for both the day and night surveys, and a Mag Lite 3D cell flashlight was used at night.

Dr. Rosie Thompson (Permit TE-815144-7) conducted the surveys with the assistance of Mr. Ron Cline of CCWA. Ron slowly paddled the kayak near the shore, stopping frequently while Rosie looked for frogs. Frogs found by eye shine at night were approached very slowly to verify identification. Vegetation along the shore was recorded during the last day survey. Approximately 1,100 feet of the pool were surveyed by kayak (Figure 4). The upstream about 100 feet was not accessible due to bulrush growth, and the western arm of the pool was too shallow for the kayak. The river adjacent to the San Lucas Creek exposed pipeline segment was not surveyed due to lack of access from the landowner. Survey information is provided in Table 1.

Results

No frogs were observed during the first day survey. Bullfrogs (*Rana catesbeiana*) were observed and heard during all the night surveys (14 to 27 per survey) and the last day survey (6). The bullfrogs were primarily in shallow water along the shore with low emergent or submerged aquatic plants. Only a few were seen in the bulrushes. Pacific chorus frogs (*Pseudacris regilla*) were heard during all the night surveys. No California red-legged frogs were observed in any of the surveys.

Other species observed include trout (*Oncorhynchus mykiss*), carp (*Cyprinus caprio*), southwestern pond turtle (*Actinemys marmorata pallida*), beaver (*Castor canadense*), bats (species not identified), American coot (*Fulica americana*), mallard (*Anas platyrhynchos*), pied-billed grebe (*Podilymbus podiceps*), and swallows (at least 2 species).

The east end of the Long Pool has a cottonwood/willow (*Populus fremontii*/*Salix lasiolepis*) riparian woodland on the banks with a few white alders (*Alnus rhombifolia*) on the south bank. Western sycamore (*Platanus racemosa*) trees occur at scattered locations around the pool. More cottonwood/willow riparian woodland is present on the south bank at the west end of the pool. Riparian scrub dominated by sandbar willow (*Salix exigua*) and mulefat occurs between the woodland patches and around the western end of the Long Pool. Herbaceous plants make up much of the understory. California bulrush forms large patches in the water, with smaller amounts of cattail (*Typha* sp.) and rushes (*Juncus* spp. and *Eleocharis* sp.). Submerged aquatic plants as well as low emergent plants were also in the water. One non-native submerged plant, *Potamogeton crispus*, was observed in the water adjacent to the cliff on the north side of the pool.

Table 1. Survey Information

<i>Date</i>	<i>Time</i>	<i>Conditions</i>	<i>Notes</i>
5 May 2009	2:20-3:20 PM	Clear and breezy	Only able to wade approximately 1/3 of pool length; large trout in pool
21 May 2009	9:00-10:15 PM	Clear, calm; ¼ moon (not visible); air 63-55F	Kayak survey of pool; two beaver
3 June 2009	9:05-10:35 PM	Few high patches of fog but clearing; ¾ moon; air 61F	Kayak survey of pool; two beaver, many bats, large carp
18 June 2009	9:05-10:57 PM	Clear, calm; almost new moon (not visible); air 68-61F	Kayak survey of pool; beaver active
25 June 2009	5:30-7:14 PM	Clear, light breeze; air 82-77F	Kayak survey of pool; recorded dominant vegetation along shore; photos of habitat
25 June 2009	9:10-10:35 PM	Clear, calm; sliver moon; air 66-59F	Kayak survey of pool; beaver active

Conclusions

Based on the results of the California red-legged frog surveys and observations of the repair sites, the proposed project would have no effects on the California red-legged frog. Although no surveys were conducted in the Santa Ynez River adjacent to the San Lucas Creek site, no California red-legged frogs are expected in that area since none were found in apparently suitable habitat in the Long Pool. The distance from the Long Pool to San Lucas Creek is approximately 1.4 miles by air and 1.6 miles via the river. At that location, the river channel does not appear to have an abundance of suitable habitat for this species, based on aerial photographs. However, a site assessment of the adjacent Santa Ynez River by a qualified biologist and one night survey is recommended prior to construction at the San Lucas Creek site.



Figure 1. Exposed Pipeline Repair Locations

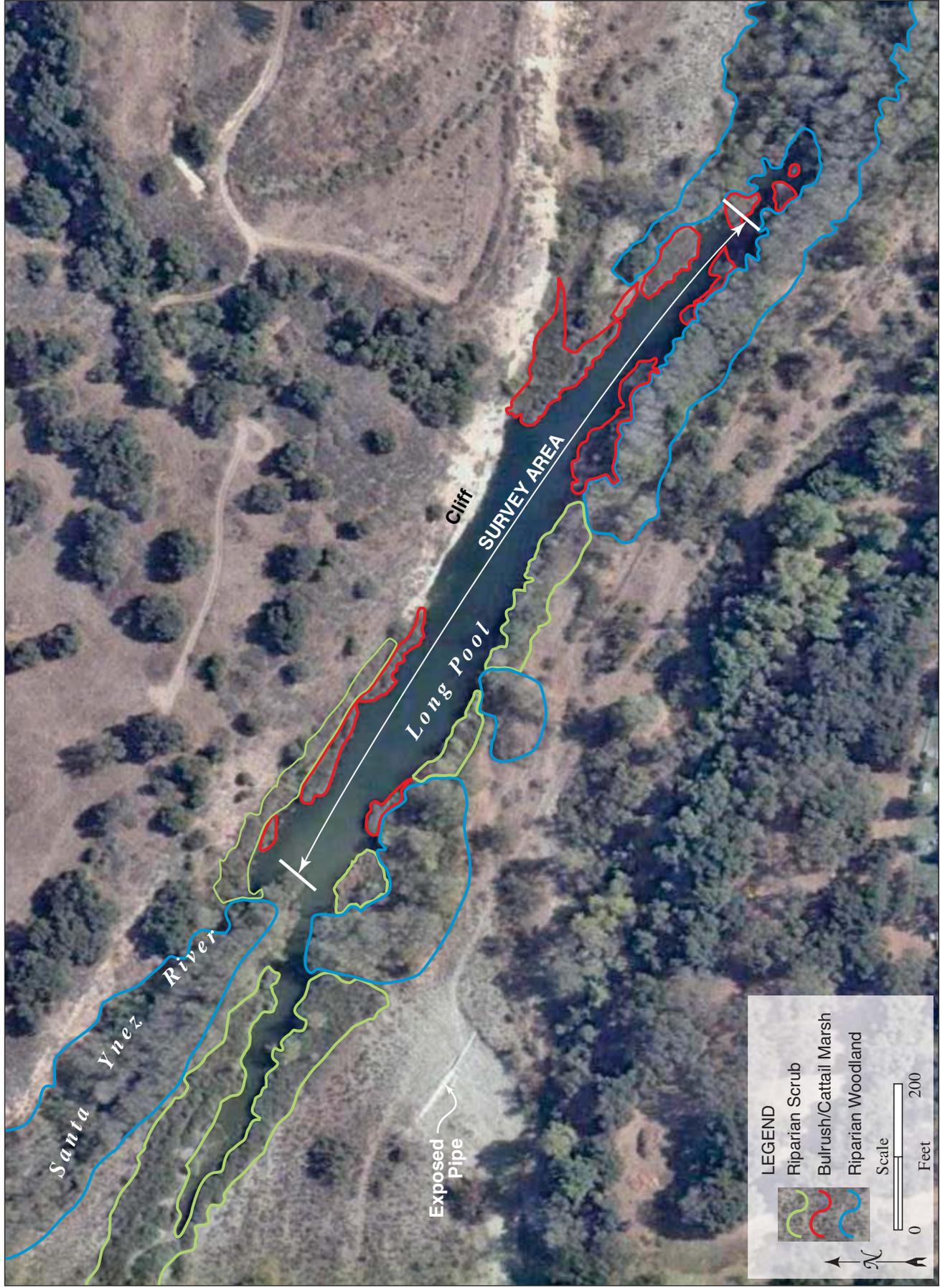


Figure 4. Survey Area and Dominant Vegetation Types along Pool Margin

Attachment A
Site Assessment and Survey Forms

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Attachment B
Site Photographs



Photo 1. Looking northwest along exposed pipeline near the Long Pool and approximately 3,800 feet northwest of the Bradbury Dam spillway gates. 15 December 2007



Photo 2. Looking northeast from the exposed pipeline toward the Long Pool (behind the riparian scrub), a distance of about 220 feet. 15 December 2007



Photo 3. Looking east along exposed pipeline in San Lucas Creek, approximately 150 feet south of the Santa Ynez River (to left). 15 December 2007



Photo 8. North bank of Long Pool with vertical cliff. Submerged and emergent aquatic plants are at base of the cliff. Bullfrogs were always seen here. 25 June 2009



Photo 9. Looking upstream in the Long Pool toward Bradbury Dam (in background). 25 June 2009

Technical Memorandum

To	John Brady, P.E., Operations Manager/Engineer Central Coast Water Authority	Page 1
Subject	Pipeline Erosion Repair Project Alternatives Development	
From	Douglas Hahn, P.E., Project Manager	
Date	April 13, 2010	

Background

The Central Coast Water Authority (CCWA) owns and operates a transmission pipeline that delivers water from the Santa Ynez Pumping Plant, located in the Santa Ynez Valley, to Lake Cachuma. This pipeline, which was constructed in the 1960's, delivers up to 10,000 gpm, at up to 376 feet of head. Erosion of soils has been a historical issue with the pipeline being in the floodplain, downstream of the Bradbury Dam. There are currently two (2) areas of the pipeline where the once-buried pipeline has become exposed and is above-ground due to soil erosion. The objective of this project is to study the issues, evaluate alternatives, and provide design and construction phase engineering services to provide remediation and repairs of these two (2) exposed reaches of pipeline.

This memorandum reports on the initial tasks of this project to begin the review of issues and options for improvements to select viable alternatives for further development and evaluation. Recommendations for interim measures to be installed within the near term are presented and alternatives for longer term improvements are identified for consideration and further study. The exposed reaches of the project are shown on the Project Location Map, **Figure 1**, and are described as follows:

- Immediately downstream of the Bradbury Dam Spillway, in an area where a secondary overflow channel diverts in a southerly path from the main channel of the Santa Ynez River. In this location the pipeline is exposed for approximately 200 feet.
- In the current channel of San Lucas Creek, immediately upstream of its confluence with the Santa Ynez River, but within the river's floodplain. In this location the pipeline is exposed for approximately 50 feet.



A secondary objective of the project's initial phases is for limited evaluation and consultation related to the reliability and longevity of the full length of the transmission pipeline. CCWA is interested in remedial measures for the two (2) exposed reaches of pipeline to be coordinated with anticipated future improvements or replacements of the full or major segments of the transmission pipeline.

Scope of Preliminary Investigations

For this phase of the project, AECOM performed the following tasks:

- **Desktop Investigation.** Readily available reports, historic aerial photos, as-built drawings and other information were gathered from CCWA, team files and public sources. This information was reviewed and analyzed from both engineering and geotechnical viewpoints.
- **Site Reconnaissance.** Geotechnical and pipeline structure experts from AECOM and FUGRO visited the two (2) sites and made pertinent observation.
- **Preliminary Review of Concepts.** The information was gathered and various construction methods were considered for potential options. The effort included conference calls with members of the project team to make initial assessments of the available options and provide a consensus on the direction of the project.
- **Technical Memorandum.** The findings of the preliminary investigation, including identifying alternative for further evaluation, are presented in this current document.

A full description of AECOM's Scope of Work for this study is found in **Appendix A**.

Desktop Investigation, Engineering

Prior to the site visit, related documents collected by the CCWA staff were reviewed in CCWA's office. It was noted that the initial pipeline was constructed of steel cylinder concrete pipe (SCCP). This type of pipe is constructed with a thin-walled steel cylinder wrapped with reinforcing rods and cement mortar lined and coated. The general performance of SCCP has been relatively good; similar to that of mortar lined and coated steel pipe. The reinforcement in this type of pipe is mild steel (not high strength), is not pre-stressed, and is not susceptible to the catastrophic failures characterizing pre-stressed concrete cylinder pipe. Like most pipe materials, SCCP is advertised to have a 50-year life under optimal conditions, however, the life-expectancy of SCCP could be many decades longer.

In the review, it was also noted that both segments of the pipeline that have been exposed were on revised alignments of the pipeline where portions of the pipeline had been replaced in 1969 following damage that occurred during the heavy flooding of that year. Record information including lay sheets for full length of the original pipeline was available, but shop drawings for the realignments in 1969, were not found during our visit. It will be initially assumed that the piping materials are similar to initial mainline SCCP materials.

The as-builts for the original pipeline indicate that in the vicinity of the upstream exposed segment (between Stations 25+00 and 43+00) the alignment was on the north bank of the Santa Ynez River low-flow channel in 1960 during the initial pipeline construction. The 1969 realignment of the pipeline brought the alignment further south crossing this channel area at the now exposed section pipe. It appears the earlier low-flow channel had become a secondary channel prior to the 1969 realignment. This secondary channel receives overbank flows from the main channel during high flow releases of the dam. The dam spillway has apparently influenced the river alignment immediately downstream of the dam.

San Lucas Creek was also noted to have meandered. The San Lucas Creek crossing for the initial pipeline construction in 1960 was further west than today, and the repair work in 1969 showed an intermediate crossing point different from both the 1960 and current conditions. San Lucas Creek changed its current channel location in the early 1990's and started the erosion that has led to the current exposure of this pipeline section. This is likely a meandering of the stream in the alluvial materials of the Santa Ynez River floodplain versus a progressive shift of the creek channel to the east.

The upstream exposed portion was located roughly on the design documents for the 1969 repairs at Station 33+00 to Station 35+00. The San Lucas crossing was roughly located around Station 103+00. The upstream exposed portion was also located on the County of Santa Barbara Assessor's Map Book 141, Page 26 within Parcel 5 near or on the Rancho De Los Pinos Boundary, which is owned by the U.S. Bureau of Reclamation. The San Lucas exposed segment was roughly located on the Assessor's Book 141, Page 29 within Parcel 55, which is owned by a private land owner. CCWA holds a 30-foot wide permanent easement (Official Record 93-085930) along the pipeline alignment and has right of access through the private land owner's land for maintenance and repair. The right of access requires notification and coordination with the land owner.

Corrosion

CCWA has installed and regularly monitors cathodic test stations along the pipeline alignment. In 1993, Corrosion Engineering and Research Company provided a soil corrosivity study that identified soils in the proximity of the exposed section as having a corrosion classification of negligible. Adverse readings were not noted in the vicinity of the exposed sections of this study.

Site Reconnaissance

On Monday, October 20, 2009, Andy Romer and Douglas Hahn of AECOM joined John Brady and Ron Cline of CCWA, on a site visit of the project site. Reconnaissance was made of the two (2) exposed portions of the CCWA 30-inch pipeline along the Santa Ynez River.

Upstream Segment Observations

Three (3) 40-foot pipe sections and 87 +/- feet of concrete encasement were exposed at the upstream segment. Portions of the pipeline were bridging over a shallow channel less than a foot below the bottom of the pipeline. A small trough could be seen downstream of the pipeline where flows cascading over the pipeline at a higher velocity had scoured deeper. In

the areas where erosion had taken place, it was noted that the materials were cobbles. The fines and sands had been washed out of the top layer of material. One to three hundred feet upstream of this segment, an air-vac assembly was noted with the designation of Station 29+49.

San Lucas Creek Segment Observations



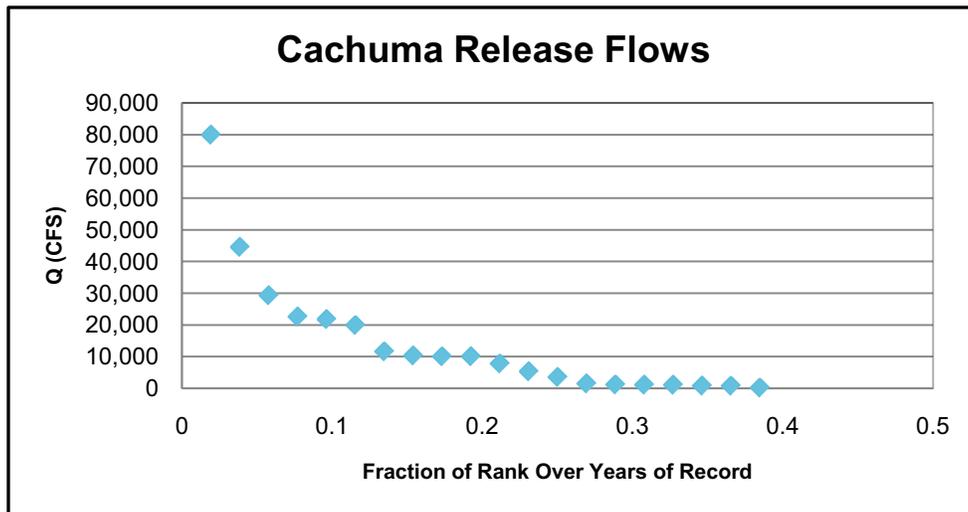
This exposed segment of pipe measured about 47 feet in length with a short (5 feet) portion of concrete encasement exposed on the west side. Erosion was not as deep and there were no lengths of pipe bridging the channel. Like the other site, there was a deep trough immediately downstream of the pipeline. Smaller cobbles were noted than the upstream site, but fines were also removed in the crossing area. 20 to 40 feet to the east of the crossing, a marker was noted with Station 107+50. (In the field, we read the marker as 102+50, but in reviewing record drawings it was noted that an 8 inch outlet was located at Station 107+50.)

Photos from the site visit are shown.



Flood Release

Historic spillway releases from Lake Cachuma recorded by the U.S. Bureau of Reclamation since 1958 have been reviewed to assess the magnitude and frequency of large flows in the Santa Ynez River. At this point in the investigations no hydrologic or hydraulic analyses have been conducted. The graph shown below simply plots the largest releases of each year (some years had multiple releases) against the fraction of years that flow was exceeded (rank divided by 52 total years of record).



There have been two (2) operating strategies for releases of the dam. A spill event occurs when the lake level reaches 750 feet and the gates are open. Operators of the dam have traditionally based releases on the inflow into the lake and what it takes to maintain a stable elevation. This has changed recently and the dam is now operated as a flood control reservoir. This new operation could reduce the peaks of the higher flow releases and increase the number of lower flow releases. The largest peak flow release occurred in 1969 with a flow of near 80,000 CFS, but it should be noted that operator error contributed to this high value by allowing all three (3) gates to be open nearly 100 percent. The graph also indicates that about once every five years (or a 20 percent chance) releases exceed about 10,000 CFS, and about once every 10 years (or a 10 percent chance) releases exceed about 20,000 CFS. In looking at the recent record, the upper pipeline segment was likely exposed by channel erosion during the 19,942 cubic feet per second (CFS) flow release in 2005, with or without additional erosion caused by a peak release of 10,066 CFS in 2006. In subsequent years, the only spillway release was limited to 819 CFS in 2008. Somewhere near this 10,000 CFS to 20,000 CFS flow range is likely the flow level where some flows will divert from the current main channel and cross the upper exposed segment of the pipeline. Note, in 32 of the last 52 years there have been no flood releases, and as of this date, the lake is currently four feet from reaching the spillway crest.

There is a USGS Stream Gage (1126000 Santa Ynez R Nr Santa Ynez ,CA) near the upper exposed pipe which can offer nearby historic water levels. However, channel overflows, and the frequencies of flood events that cross the pipeline cannot be calculated from this data due to insufficient topographic information.

San Lucas Creek is an unregulated watershed and the lower exposed pipeline segment will be impacted by a separate regime of flows. That is, San Lucas Creek can have erosive flood flows at different times and for different events than the large flow releases from Lake Cachuma. The exposed pipeline at the San Lucas Creek crossing will likely see more frequent creek flows, but at smaller magnitudes than the Santa Ynez releases. With updated topography, and considering the extent of the eroded channel section, estimates of past flood flows can be roughly made and used as a design criteria. This type of calculation would only estimate recent erosive flow events that will be exceeded by larger flood events.

Desktop Investigation, Geotechnical

Fugro West, Inc. (Fugro) conducted a desktop study including the review of historical aerial photographs of the Santa Ynez River below Bradbury Dam. Their report dated January 29, 2009 is appended to this memorandum (**Appendix B**). Some of their key findings noted (due to cobbles, sands, and high groundwater) are not:

- excavations will be difficult;
- excavations will require relatively large cut backs; and
- trenchless technologies for short spans (less than 1,000 feet) are not viable.

The aerial photos confirm the normal low-flow channel below Bradley Dam has shifted from the southern side of the sand bar to the northern side following the 1969 flood events. Fugro also noted the reduced channel grades over time, but couldn't provide quantified estimates, without record survey information.

Construction/Repair Options

As preparation for discussions on repair options, several options including the approaches noted in AECOM's proposal and ideas identified while conducting site observations were reviewed on a very conceptual level to roughly size the improvements and the magnitude of costs involved. These options are briefly described below. **Table 1** (follows) provides a summary. Trenchless technology was not considered for alternatives involving short installation lengths.

Full Pipeline Replacement. This alternative involves the relocation of five (5) miles of the transmission pipeline that is in the Santa Ynez River flood plain to a more secure and accessible location under or adjacent to Highway 154. This is the baseline project for complete restoration of the transmission system, which would require a significant period of time for planning, approvals, and funding. This alternative will have a significant cost, but would have the environmental benefit of removing facilities out of the river area, greatly increasing the reliability of the line, reducing risk and facilitating normal operations and maintenance. The other challenge in addition to cost are the approvals and permitting issues that would need to be coordinated with CALTRANS for construction on or adjacent to the highway's right-of-way.

Problem Area Replacement. The area immediately below Bradbury Dam to below the San Lucas Creek confluence is where both exposed segments of the pipeline have recently occurred. This is also the area where significant pipeline replacements were made after the flooding of 1969. A rough concept using two (2) reaches of about 3,000-foot lengths of

horizontal directional drilling (HDD) under the erosive channel areas complimented with about a 2,500 feet of conventional pipeline construction outside the channel (but within the floodplain) was considered. This option would significantly improve the reliability of this 8,000 to 9,000-foot portion of the pipeline. The remaining 19,000 feet of the pipeline in the Santa Ynez River floodplain would remain with its current risks and other conditions. Note, relocating segments of the pipeline to Highway 154 could be considered, but the added lengths and right-of-way requirements to tie in the segment upstream and downstream, would add additional costs.

Riprap. Riprap can be installed downstream of the current exposed sections of the pipeline. The riprap would act as drop structures slowing flows over the pipeline with the energy being dissipated while crossing the new rock structures versus the pipeline. With this measure, the exposed pipe segments could be backfilled with the riprap offering erosion protection for this material. This type of construction could be conducted as a relatively quick and simple emergency measure by using a backhoe to move larger stones and boulders from the river channel to the downstream side of the exposed pipeline. Importing heavy and dense angular stones would form stronger structures. This type of option would have limited effectiveness for the full pipeline in that the pipeline upstream and downstream of these improvements would be at risk if the erosive flows migrated to other locations. Also the cost and size of stones would be constructed to meet a certain criteria of flow and velocities such as a 10-year flood event. This type of improvement would be at risk for larger flood events. Due to these limitations, this type of option would be considered as a temporary or interim measure.

Point Replacements. Similar to past repairs, the exposed segments could be replaced with a deeper placement of the pipe combined with a concrete encasement. Like the riprap option, this option would have limited effectiveness for the full pipeline in that the pipeline upstream and downstream of these improvements would be at risk if the erosive flows migrated to other locations or if addition down cutting of the channel occurs. This option would also be considered as a temporary or interim measure.

Piers. Where erosion has cut deeper channels, the pipeline could be raised and supported above the planned flows. Piers could be placed by drilling or driving piles. This construction option has successfully been used for downstream portions of this same transmission line. Like the riprap option, this option would have limited effectiveness for the full pipeline in that the pipeline upstream and downstream of these improvements would be at risk if the erosive flows migrated to other locations; and whatever is used as a criterion for required flow areas, a larger event could potentially occur. This option would also be considered as a temporary or interim measure.



Pier supports in Santa Ynez River.

Damage Risk Mitigation Table 1 - Alternatives	
Alternative & Cost	Description of Cost Basis
Full Pipeline Replacement \$160 Million	26,000 feet of 30" WSP in Highway 154 @ \$20*/dia-in =>\$600/foot => \$160 Million. *From recent bid for 2nd Barrel – COMB (48" WSP)
Problem Area Replacement \$7 Million	6,000 feet of HDD @ \$1,000/foot => \$6 Million plus
	1000 feet conventional \$600/foot => \$600,000
Riprap \$200,000	250' x 10' = 2,500 ft sq @ \$80/ft-sq => \$200,000
Point Replacements \$300,000	300' of 30" WSP concrete encased @ \$1000/foot => \$300,000
Piers \$600,000	400' total borings, 24" dia. @ \$1300/foot => \$520,000 plus
	Armored pipe replacement 200' @ \$400/ft => \$80,000

Telephone Conferences

Telephone conferences were conducted on February 10, 2010 and February 17, 2010 to review desktop investigation findings, observations and potential options, and to discuss the course of the project. In the first session, Dan Ellison and Doug Hahn were joined with Lori Prentice of Fugro and John Brady. Dave Arthurs joined briefly at the start of the first session and participated in the second session. Andy Romer along with Rosie Thompson, of ENTRIX was also able to participate in the later session on the February 17, 2010.

At the first session concepts for interim and long-term repairs were discussed along with the findings of Fugro’s desktop study. In the second session, these options were further discussed, and scheduling issues for permits and access were raised.

Considering the time needed to conduct geotechnical explorations, which are essential for evaluating the feasibility of long-term repairs; and the potential risk of the exposed pipeline segments in their current state; there was a consensus to move forward with interim measures. The continued development and evaluation of long-term repairs will progress within the constraints of permitting and the moratorium. A moratorium established by the U.S. Bureau of Reclamation prohibits work in the Santa Ynez River channel area from December first through May first. The recommendations on interim measures and longer term alternatives that followed from these conference calls are discussed below. A proposed schedule of key project and construction activities was also developed and is presented in **Appendix C**.

Interim Measures

In our site visits to the exposed segments, Andy Romer suggested a means to control velocities and sediment loss that he had seen in another application. That was to provide riprap structures downstream of the exposed segments. In the conference call this option was thought of as an appropriate approach, but it was requested that a flow path be created

to control limited flows passing the pipeline. It was agreed that the riprap structure could be complemented with lowering and hardening portions of the exposed segments. The riprap could be extended 5 to 10 feet beyond the channels created by erosion. The lowering and hardening of the pipelines will provide some control of the local hydraulics up to limited flows. The replacement pipe would likely be lowered 5 to 8 feet below a 10 to 20 foot wide channel via conventional trenching and would be concrete encased. The new channel would traverse both the riprap structure and the lowered pipeline and would be lined with a rock mesh slope armor or cement grouted riprap (smaller stone than the drop structure). The pipe replaced would be one (1) or two (2) 40-foot sections of the existing SCCP.

For SCCP type pipe, field repairs and replacements need to span joint to joint, where there is adequate steel for welding. The interim measures would be not intended to provide complete protection of the lines during severe flooding or large spillway releases. The basics of this concept are shown on **Figure 2**. The concept should be further refined with hydrologic and hydraulic analyses based on site-specific geotechnical information and design-level ground surveys.

Long-Term Improvements

The next step for long-term improvements is to continue to study the issues and evaluate alternatives for pipeline protection, focusing on the two (2) currently exposed segments of the transmission pipeline. Assuming the interim measures design moves forward, this alternative analysis will account for the interim measures (in place) when assessing improved reliability and added value. The alternatives to be considered would include replacing high-risk portions of the pipeline by 1) realigning the pipeline out of the flood plain using conventional trenching methods, 2) using HDD to locate the pipeline below potential erosion depths, or 3) a combination of these two (2) methods. The ultimate protection would be to replace the entire pipeline outside the flood plain with a new alignment under or adjacent to the highway.

As noted earlier, relocating a limited pipeline segment to Highway 154 would not be economically feasible. The high-risk pipeline reach to be considered is the area between and adjacent to the two (2) exposed segments investigated in this project. A preliminary concept plan combining HDD and conventional construction is shown on **Figure 3**. Note, this alignment does not represent a proposed alignment to be considered by CCWA at this time. Alternative projects should be developed with new geotechnical explorations and investigations, topographic surveys, hydrologic and hydraulic analyses and constructability reviews, then evaluated based on costs, reliability, risks, environmental impacts and other considerations.

Attachments:

Appendix A: Scope of Work

Appendix B: Geotechnical Desktop Study Report

Appendix C: Preliminary Project Schedule

APPENDIX A
Scope of Work

Task 110 – Desktop Investigation, Engineering

CCWA will support the investigation by collecting and assembling available as-builts, reports, pertinent operations and repair records, pipe laying drawings and related information for the pipeline and site conditions. This information will be gathered from CCWA's records and from key agencies such as the Bureau of Reclamation, Department of Water Resources, and the County of Santa Barbara flood control agency. AECOM will review the gathered information to better understand the project requirements and to garner pertinent facts for developing and assessing remediation alternatives. AECOM will supplement the data collection provided by CCWA with limited contacts with other agencies. Up to three (3) meetings with the CCWA staff and key agencies, such as the Bureau of Reclamation or County of Santa Barbara, are anticipated for data collection. Consistent with the professional standard of care and unless specifically provided herein, AECOM shall be entitled to rely upon the accuracy of data and information provided by CCWA or others without independent review or evaluation.

The following is a partial list of data and records to be gathered and reviewed:

- CCWA Preliminary Design Report
- As-Builts of Existing Pipeline and Previous Repairs
- Bureau of Reclamation records and reports for Lake Cachuma
- Flood Control Records
- DWR records for stream gages, wells, etc.
- Right-of-Way (Parcel Maps, CCWA Easements)

Task 115 – Desktop Investigation, Geotechnical

As a subconsultant to AECOM, Fugro West will investigate geotechnical conditions at the two sites. Recent and historic borings and previous reports for the immediate vicinity will be used in this initial task with no new excavations. Site reconnaissance will be used to supplement the data review. Aerial photography from the UCSB Map and Imagery Library will be reviewed to evaluate historical flow patterns. A technical memorandum summarizing findings and opinions will be provided.

Task 120 – Site Reconnaissance

AECOM will drive the full alignment of the transmission pipeline and visit the two exposed portions of the pipeline and accessible areas of the pipeline where recent repairs have been made. CCWA will be responsible for acquiring the required rights of access and coordinating with adjacent landowners. Observations will be documented in a brief field assessment memo and photos.

Task 130 – Preliminary Contacts and Coordination with Stakeholders

CCWA or CCWA's environmental consultant will be responsible for any environment documentation, CEQA document processing, etc. for the pipeline repairs and related construction. Several state and federal agencies will require permits for the proposed work

and will have requirements regarding how construction activities may proceed. It is assumed that CCWA's environmental consultant will provide input on permit and compliance requirements for consideration in the Task 100 Preliminary Investigations.

Task 140 – Preliminary Development and Assessment of Alternative Concepts

AECOM will analyze the information gathered in earlier tasks to develop concepts for rehabilitating the two reaches of exposed pipe. The four options noted in the AECOM's SOQ will be part of the consideration:

- *Horizontal Directional Drilling*
- *Pipe Suspension Bridge*
- *Pipe in a Pipe with Drilled Piers*
- *Deep Open-Trench with Hardening*

Other construction methods may be reviewed and options for emergency responses and repairs and other long-term improvements for the full transmission pipeline may also be considered on a preliminary concept level. Limited evaluation and assessments of options will consider several aspects including:

- *Cost*
- *Reliability/Longevity*
- *Constructability*
- *Environmental Compliance*
- *Permits/Regulatory Limitations*
- *Risk – Short-term/Long-term*
- *Access and Right-of-Way*
 - *Safety/Security*
 - *Aesthetics*
 - *Schedule Constraints*
 - *Operations and Maintenance*

Task 150 – Technical Memorandum

AECOM will prepare a Technical Memorandum summarizing the findings of the study and identifying three alternatives at each exposed pipe location for further evaluation. One meeting will be held with CCWA to present and review the findings.

APPENDIX B
Geotechnical Desktop Study Report



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January 29, 2010
Project No. 3044.084

AECOM
5851 Thille Street, Suite 201
Ventura, California 93003

Attention: Mr. Doug Hahn, P.E.

Subject: Preliminary Opinions of Geotechnical Conditions, Central Coast Water Authority Pipeline Erosion Damage Repair Project, Santa Ynez River Valley, Santa Barbara County, California

Dear Mr. Hahn:

Fugro is pleased to present this letter summarizing our opinions of the geotechnical conditions in the vicinity of the Central Coast Water Authority's (CCWA) pipeline erosion damage repair project within the Santa Ynez River (SYR) channel. The project site is located within the active SYR channel, downstream of Bradbury Dam in Santa Barbara County near the location indicated on Plate 1 - Vicinity Map.

The pipeline erosion damage repair project consists of the evaluation, design, and repair of two exposed segments (referred to as Sites A and B herein) of CCWA's pipeline downstream of Bradbury Dam. Both sites are located within the active SYR fluvial channel and floodplain as indicated on the Google Earth aerial image of the project site presented on Plate 2 - Site Map. The northern site, Site A, is located within the SYR channel, about 2,200 feet downstream of the toe of the dam near pipeline Station (Sta.) 34+00 (AECOM, 2009a). The southern site, Site B, is located about 1-3/4 mile downstream of the dam in the vicinity of the San Lucas Creek (SLC) confluence with the SYR near pipeline Sta. 103+00.

PROJECT

Our understanding of this project is based on the project description in CCWA's Request for Qualifications (RFQ) RFQ-C-08EROSRP dated July 14, 2009, a site visit, and on discussions with the AECOM and CCWA team. The purpose of the preliminary geotechnical study is to provide preliminary opinions of geotechnical conditions at the two repair sites as input to developing repair alternatives. Based on a site visit with representatives of CCWA on August 11, 2009 and on AECOM (2009b), the exposed segments are about 50 feet (Site B) and 150 feet (Site A) long.



SCOPE OF WORK

For this desk top study, we reviewed various data provided to us by CCWA and AECOM for the pipeline alignment and SYR vicinity. We also reviewed stereo-pair aerial photographs available in our files and at the County of Santa Barbara Flood Control District to evaluate the historical flow patterns within the SYR in the project vicinity after construction of the Bradbury Dam in 1952. In addition to the photographs, we reviewed published and unpublished geologic and geotechnical data available in our files (including Caltrans data for the SR154 crossing of SYR downstream of the project vicinity) and participated in a site reconnaissance in August 2009. Geotechnical data for dam construction were not available for our review.

Geologic and geotechnical information from the data review and field reconnaissance were evaluated to characterize the potential subsurface conditions that may exist at pipeline repair Sites A and B. The evaluations also include a preliminary discussion of potential geohazards that could affect the project during its design life. Subsurface exploration to confirm our opinions relative to potential subsurface/geotechnical conditions are not included in this scope of work.

FINDINGS

General

The US Bureau of Reclamation (USBR) completed construction of Bradbury Dam on the SYR in December 1952. The dam impounds water of the SYR and watershed in Lake Cachuma as part of the Cachuma Project. According to the USBR website, the dam is a zoned earthfill structure that is about 206 feet above the SYR streambed and has an overall height of 279 feet from the bottom of the cutoff trench to the top of the dam. The dam and Lake Cachuma are operated and maintained by USBR. Water is released from Bradbury dam spillway year-round as part of permit requirements. Water is also released from the spillway during and following periods of heavy precipitation.

The existing 30-inch-diameter pipeline alignment was reportedly constructed within the active SYR channel downstream of the dam in the 1960's by the USBR to deliver water from Lake Cachuma to downstream facilities. Data review suggests that the original construction provided for about 6 to 8 feet of cover above the pipeline. The pipeline was subsequently purchased by CCWA in the early 1990's, the flow direction was reversed so that the pipeline delivers water from the Santa Ynez Pumping Plant, located in the Santa Ynez Valley, to Lake Cachuma and air valves were installed at various locations.

Based on our aerial photographic review and on conversations with representatives at CCWA, erosion of the alluvial soil materials covering the pipeline has been a historical issue, typically following heavy rainfall events. Several sections of the alignment within the project area have been exposed by erosion and scour since construction. AECOM (2009b) indicates that both of the currently exposed segments of the alignment were realigned/reinforced following damage that occurred as a result of the heavy flows and flooding during the 1969 storm events.



Geologic Setting

The project site is located in the Santa Ynez Valley between the northern margin of the Transverse Ranges Geomorphic Province and the southern end of the Coast Ranges Geomorphic Province. The Transverse Ranges are locally dominated by the Santa Ynez Mountains. The western portion of the Santa Ynez Mountains consists of northern and southern structural blocks separated by the eastward trending Santa Ynez/Pacifico fault zone (Dibblee 1950, 1966). The site is within the Santa Ynez River basin that bounds the northern structural block.

The geology in the site vicinity is generally mapped as Recent and older alluvial deposits (map symbols Qa, Qg, Qog, and Qoa) that overly folded sedimentary rock of the Miocene-age Monterey Formation (map symbol Tm). Westerly-trending folds developed within the Miocene formation characterize the geologic structure in the project area. The surface geology in the vicinity of the site (reproduced from SGD, 1992) is depicted on Plate 3 - Geologic Map.

Site Conditions

The project alignment is located within the westerly draining SYR channel, downstream of the Bradbury Dam. As shown on the aerial photograph on Plate 2, the SYR channel is an active, meandering, fluvial channel that is about 400 to 1,000 feet wide in the project area. Geomorphic features in the project area are typical of the fluvial environment and consist of braided meandering low flow channels, sand bars and a sand bar island, point bars, riffle areas, and stream banks. Flow in the river varies seasonally depending on precipitation and releases from the dam. Flooding has occurred within the project limits historically, and has continued since construction of the dam as a result of heavy storm events. Alluvial sediments observed at the ground surface within the project areas during our site reconnaissance consist predominately of subrounded to rounded cobbles and boulders, infilled with finer-grained sandy material. Approximate elevations taken from Google Earth indicate that the topography within the project area ranges from about El. 555 feet near Site A to about El. 525 feet near Site B.

Review of Caltrans (1970) data for the Santa Ynez River Bridge No. 51-79/SR154 crossing of the SYR, located about a mile downstream of Site B (Plate 1), suggests that the earth materials at that location consist of granular alluvial sediments overlying siltstone and shale bedrock of the Monterey Formation. The depth of the bedrock appears to be variable across the bridge alignment, ranging from about 15 to more than 50 feet below the ground surface at the time of exploration in the summer of 1969. The alluvial sediments described by Caltrans were primarily granular, consisting of loose to dense gravel, cobbles, sand, and silty sand. Groundwater depths reportedly ranged from the ground surface in flowing channels and to depths of about 25 feet in elevated portions of the river channel.

Site A. A prominent, primary low flow channel (LFC) extends westward from the spillway pool along the northern bank of the channel along the length of the project area as indicated on Plate 2. Similarly, a secondary, southern LFC diverges from the northern LFC near Site A and extends westerly along the southern bank of the channel for about 3,000 feet where it rejoins the northern LFC near the northern river channel bank (Plate 2). A westerly-trending



elliptical-shaped braided sand bar island separates the northern and southern LFCs. The aerial photograph review indicates that prior to the 1969 storm and flooding events, the primary LFC extended westward from the spillway pool, crossed Site A, and traversed northwesterly across the sand bar island to the northern river channel bank. Following the January 1969 storm events, the river abandoned the Site A crossing, southern bank area, and northwest sand bar island crossing and established a primary LFC along the length of the northern river bank in the project area. The approximate locations of the LFCs are indicated on Plate 3.

According to AECOM (2009b), three 40-foot pipe sections and about 87 feet of concrete encasement were exposed at Site A at the time of the field reconnaissance. Portions of the pipeline were observed to span unsupported, about one-foot above a narrow channel area that appeared to be a result of downstream scour related to water flow cascading over the pipeline. Based on the observed existing conditions, the diameter of the pipeline, and estimated depth of cover as originally constructed, it appears that about 10 to 12 feet of sediment may have been eroded from Site A since construction of the pipeline.

Observation of the alluvial sediment exposed within the banks of the scoured areas suggests that the native alluvial materials consist of a matrix of cobbles and boulders infilled with finer granular (sand and gravel) sediment. In comparison, alluvial materials observed at the ground surface in the vicinity of the exposed pipeline consisted predominately of rounded to well rounded cobbles and boulders to several feet in diameter. The fines visible within the exposed banks appear to have been washed out by the scour/erosion process.

Site B. The pipeline alignment at Site B crosses SLC, a northerly draining tributary to SYR, about 150 feet south of the confluence with the SYR. Based on our data review, the SLC channel near the confluence with the SYR has meandered and the channel has migrated north and south of the existing location with time. Additionally, the geomorphic conditions have varied from a narrow, steeply incised drainage to a wide, braided floodplain area influenced both by westerly flow within the SYR as well as northerly flow within the SLC. During our site reconnaissance, the channel was steeply incised and about 50 feet of the pipeline alignment was exposed within the channel. Conditions observed in the 1969 aerial photographs reviewed for this study indicate that a section of the pipeline was exposed by a historical SLC channel meander, about 100 feet north of the existing location following the 1969 storm flow.

Based on site observations, the alluvial sediments exposed in the SLC banks consist predominately of cobbles and boulders with sand and gravel infilling similar to Site A. In areas adjacent to the exposed pipeline, the near surface materials consisted primarily of cobbles and boulders as the fines apparently had been washed away during the erosion/scour process.

Summary of Aerial Photograph Review

Stereo-pair aerial photographs available in our files and at the County of Santa Barbara Flood Control District were reviewed to evaluate the historical flow patterns within the SYR in the project vicinity after construction of the Bradbury Dam in 1952. The results of the aerial photograph review are summarized in Table 1.



Table 1. Summary of Aerial Photograph Review

Date	Observations
1/4/60	LFC alignment along southern bank, crosses vicinity of Site A, and extends NW across sand bar to northern bank; sand bar "ramp" in place over Site A; pipeline Sites A and B not exposed.
6/9/65	LFC alignment along southern bank, crosses vicinity of Site A, and extends NW across sand bar to northern bank; sand bar "ramp" in place over Site A; pipeline Sites A and B not exposed.
4/14/66	LFC alignment along southern bank, crosses sand bar "ramp" in vicinity of Site A, and extends NW across sand bar to northern bank; sand bar "ramp" in place over Site A; pipeline Sites A and B not exposed; SLC channel narrow and incised.
1/26/69	SYR and SLC flowing heavily; dam discharging through spillway; flooding common downstream of dam.
1/31/69	Flood waters receded; broken pipe exposed near middle of channel about 800' downstream of dam; sand bar "ramp" in place over Site A and pipeline does not appear to be exposed; LFC abandoned southern bank alignment, Site A crossing at sand bar "ramp", and traverse to NW across sandbar; remnants of the LFC traversing NW across sand bar visible. New LFC alignment along length of northern bank; portion of Site B exposed that appears to be about 100 feet upstream of the existing exposure; water being released from dam.
7/19/69	LFC alignment along northern bank extending westward from pool; abandoned channel along southern bank west of sand bar "ramp"; sand bar "ramp" in place over Site A and pipeline not exposed; exposed pipeline at SLC near Site B covered and no longer exposed; water being released from dam.
9/6/73	LFC alignment along northern bank extending westward from pool; abandoned channel along southern bank west of sand bar "ramp"; sand bar "ramp" in place over Site A; pipeline Sites A and B not exposed; SLC channel narrow and incised.
9/2/78	Similar conditions to 9/6/73
11/9/79	Similar conditions to 9/2/78
10/27/83	Similar conditions to 11/9/79; SLC channel narrow and incised.
3/25/86	Similar conditions to 10/27/83
11/7/87	LFC alignment along northern bank extending westward from pool; abandoned channel along southern bank west of sand bar "ramp"; sand bar "ramp" in place over Site A; pipeline Site A and B not exposed; SLC channel narrow and incised; exposed pipeline within northern LFC of SYR, about 2,300' upstream of confluence of SLC.
4/8/01	Sand bar "ramp" eroded and northern LFC joined with southern LFC; Site A exposed; SLC channel eroded to encompass wide area, Site B not exposed.
10/29/06	Similar conditions, Sites A and B exposed, as well as 2 additional segments exposed within the northern LFC; one about 2,500 feet west of Site A and one about 3,900 feet west of Site A.

Local Faults and Seismicity

The project vicinity is located within a seismically active area within California that has been and will be subject to strong ground shaking during the project design life. The site does not lie in an Alquist-Priolo fault rupture hazard zone, but it is proximal to a number of potentially active and active faults, including the North Channel Slope fault, the Santa Ynez fault, the Los Alamos/Baseline fault, and the Mission Ridge-Arroyo Parida fault. Those faults are all located within 10 miles of the site. The data review also indicates that there are no known active or



potentially active faults that cross or trend toward the alignment within the project area. The potential exists for strong ground shaking from a seismic event and for secondary effects of a seismic event, such as liquefaction and seismic settlement, to affect the project alignment during its design life. Based on the results from the California Geological Society's interactive online Probabilistic Seismic Hazards Mapping Ground Motion Page, the project area could be subject to ground accelerations of about 0.46g (10% probability of being exceeded in 50 years). For the estimation of the ground acceleration, a point about midway between Sites A and B was entered for the purpose of the evaluation. The potential for fault rupture to affect the alignment in the project area is considered low.

Flooding and Seiching

The Federal Emergency Management Agency (FEMA, 2005b) Flood Insurance Rate Map (FIRM) indicates that Site A is located within the limits of the Cachuma Recreation Area at a flood elevation of about El. 568 to 570 feet (referenced to National Geodetic Datum of 1929 [NAD29]) and within a designated floodway area in Flood Zone AE. The FEMA (2005a) FIRM indicates that Site B is located at a flood elevation of about El. 539 feet (NAD29) and within a designated floodway area in Flood Zone AE.

The project area is located within an ephemeral river channel, downstream of the Bradbury Dam and Lake Cachuma. Historically, flooding and erosion/scour within the SYR and SLC associated with significant storm events such as those that occurred in 1969 and 1980 have affected various segments of the pipeline alignment. In our opinion, the potential for flooding and erosion/scour to affect the alignment is high. Because the project site is located downstream of Lake Cachuma, there is also a potential for seiching to affect the project alignment.

CONCLUSIONS

Based on the work performed for this study, the SYR and the SLC at the confluence with the river are dynamic fluvial environments. Even though the flow within the river is controlled in part by the Bradbury Dam, the sediments within the river and creek channels are subject to erosion and scour that can result in exposure and/or damage the existing pipeline alignment. In our opinion, the potential exists for future erosion/scour to affect any portion of the alignment constructed within the river and creek channels, particularly in areas that traverse the more deeply incised flow channels.

Site-specific geotechnical data are not available at the repair sites, however, review of Caltrans (1970) suggests that the depth of the alluvial materials and top of the bedrock may be 15 to 50 feet or more. Construction/excavation efforts to repair or replace the exposed segments by deepening the installations within the existing locations likely will encounter shallow groundwater, caving granular soils, and oversize materials (cobbles and boulders). In our opinion, trenchless construction within the alluvial materials at the two repair sites would be challenging and may not be a viable repair alternative due to the oversize materials, high groundwater, and anticipate caving conditions. Trenchless construction may be a viable



alternative for longer reaches installed within the bedrock materials that underlie the alluvial sediments.

PHASE 2 EXPLORATION AND GEOTECHNICAL EVALUATION

This desktop report summarizes available geologic and geotechnical information as outlined in Task 1 of our proposal dated August 31, 2009. Phase 2 of our August proposal includes field exploration combining geophysical surveys and sonic drill holes to evaluate site-specific subsurface conditions and provide geotechnical design criteria for possible repair options.

CLOSURE

Thank you for the opportunity to provide geotechnical services for the Central Coast Water Authority's pipeline erosion damage repair project. Please call if you have any questions regarding information presented herein.

Sincerely,

FUGRO WEST, INC.

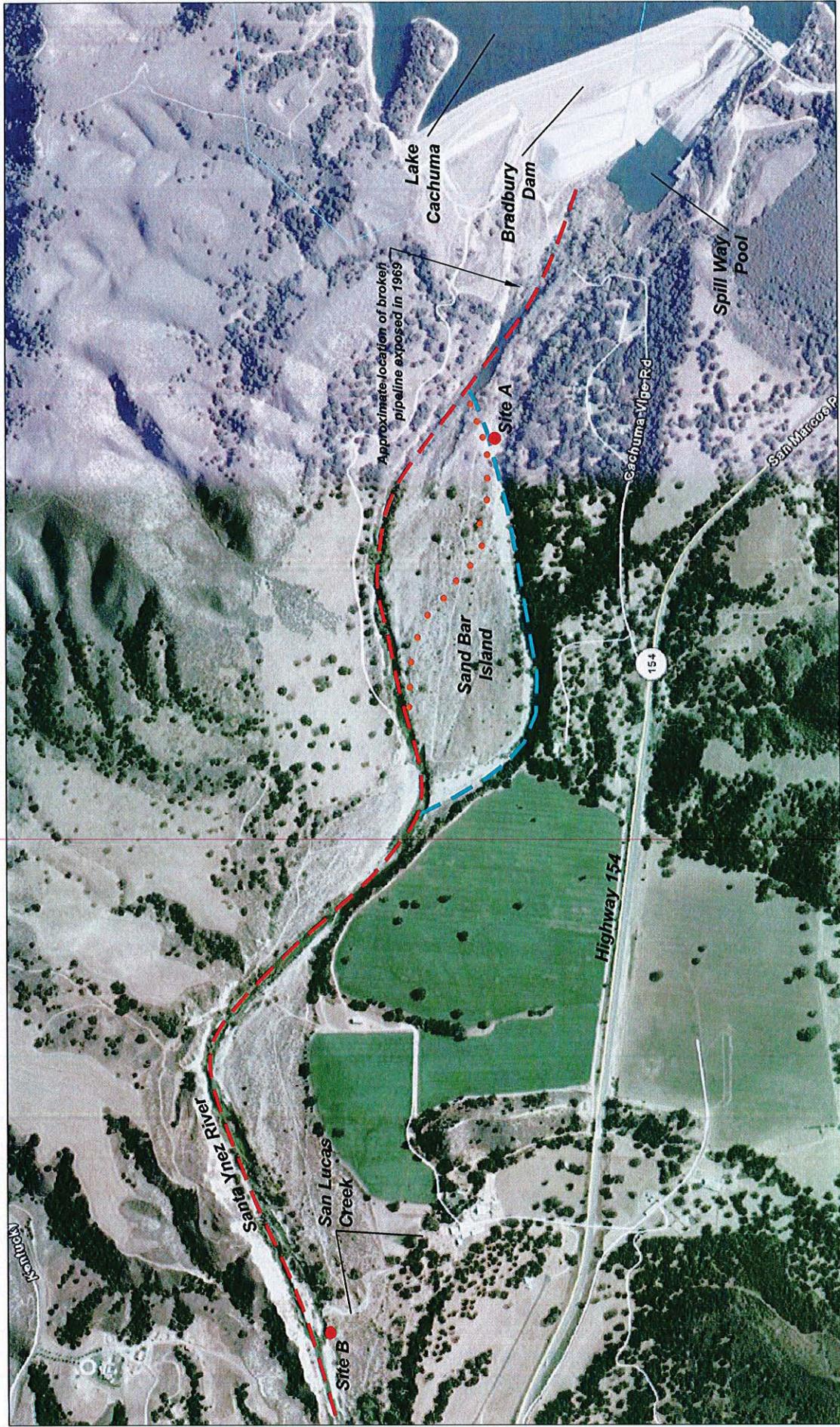
A handwritten signature in black ink, appearing to read "Lori E. Prentice".

Lori E. Prentice, C.E.G.

Principal Engineering Geologist

Enclosures: Plate 1 - Vicinity Map
Plate 2 - Site Map
Plate 3 - Geologic Map

Copies: (1 - Pdf) Addressee



BASE MAP SOURCE: This Site Plan provided by an aerial photograph from Google Earth Pro (2007).

LEGEND

Site A ●

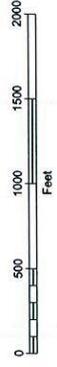
— — — — — Approximate location of broken pipeline exposed in 1969

— — — — — Area discussed in report

— — — — — Northern LFC

— — — — — Southern LFC

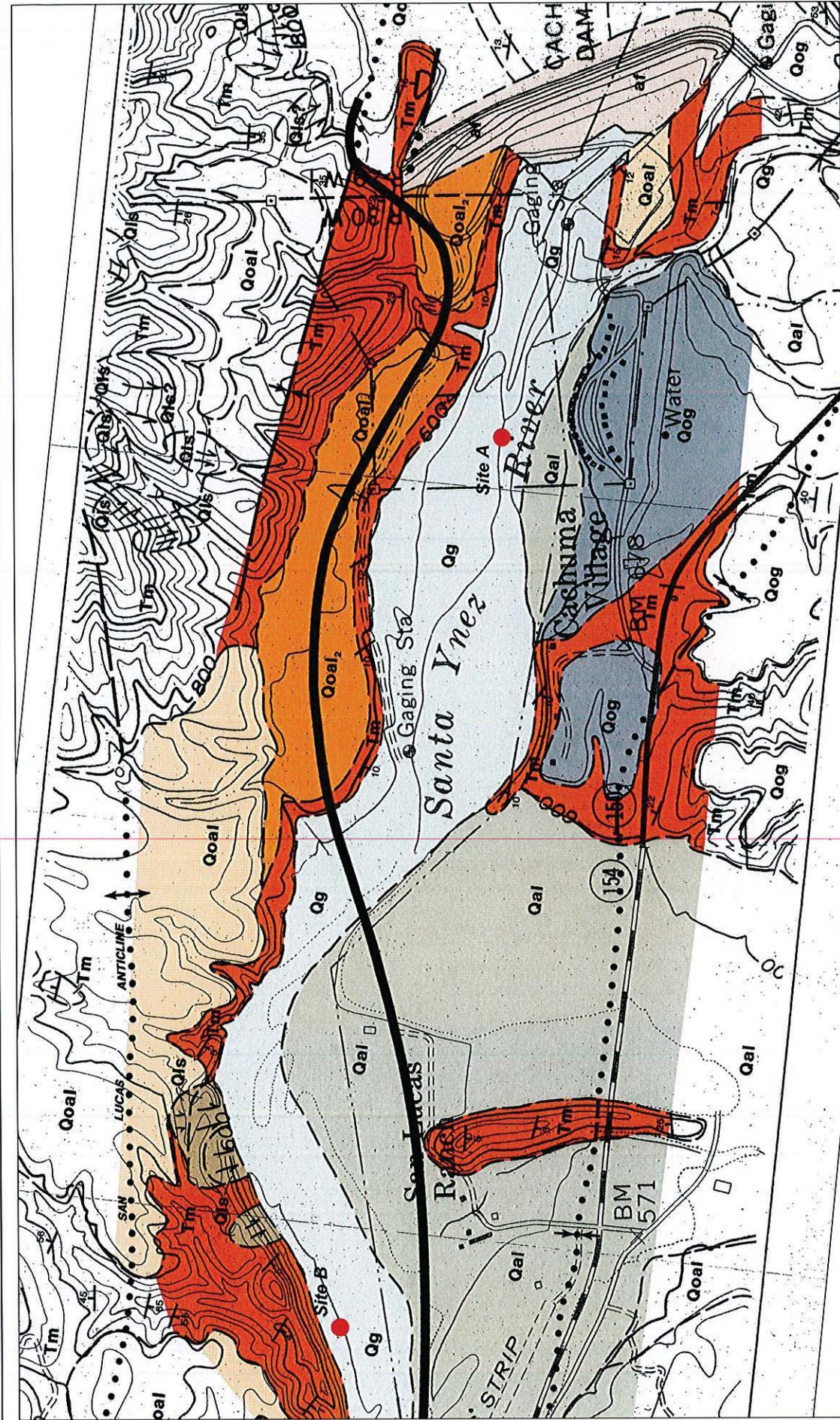
● ● ● ● ● LFC across sand bar island



FUGRO WEST, INC.
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 Tel: (805) 880-7600, Fax: (805) 880-7010

SITE MAP
 CCWA Pipeline Erosion Repair Project
 Santa Barbara County, California

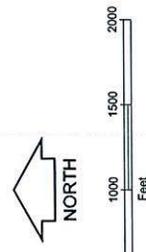
Client: AECOM
 3044.084
 January 2010
 Plate 2



BASE MAP SOURCE: This Geologic Map was modified from Staal, Gardner, & Dunne, Inc. (1992).

LEGEND

- | | | |
|---------------|--------------|-------------------------------------|
| Site A | Qal | Recent Alluvium |
| Site B | Qog | Older Gravels and Fonglomerate |
| af | Qoal | Terrace Deposits (undifferentiated) |
| Qls | Qoal2 | Terrace Deposits (intermediate) |
| Qg | Tm | Monterey Formation |
| | | Artificial Fill |
| | | Landslide Deposits |
| | | Stream Channel Deposits |

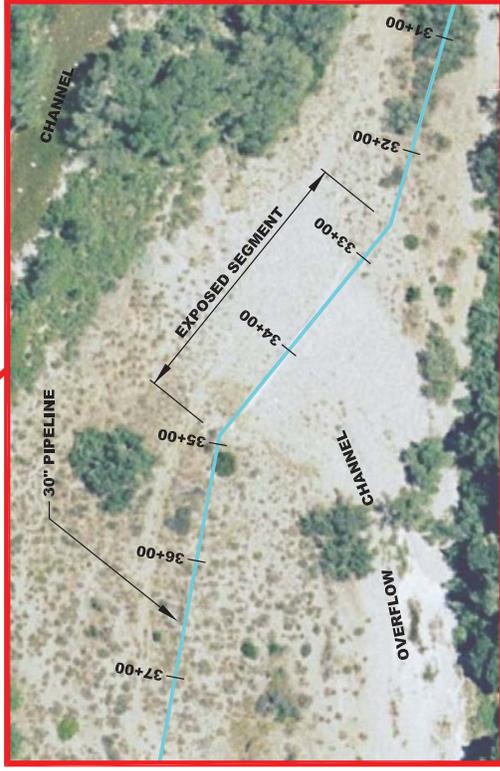
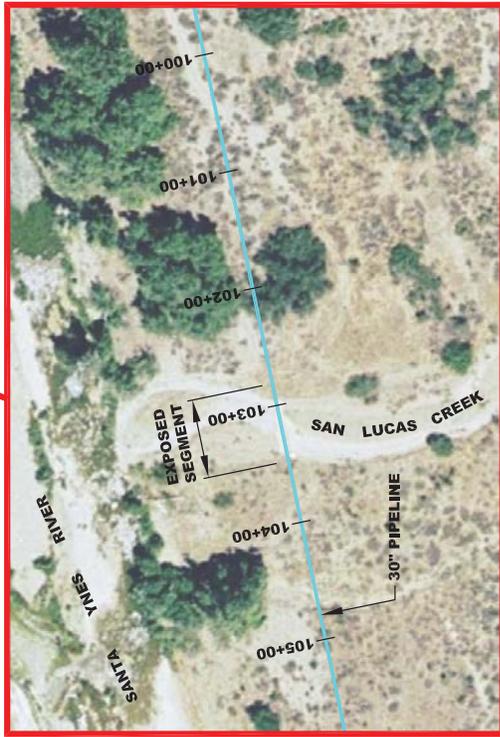
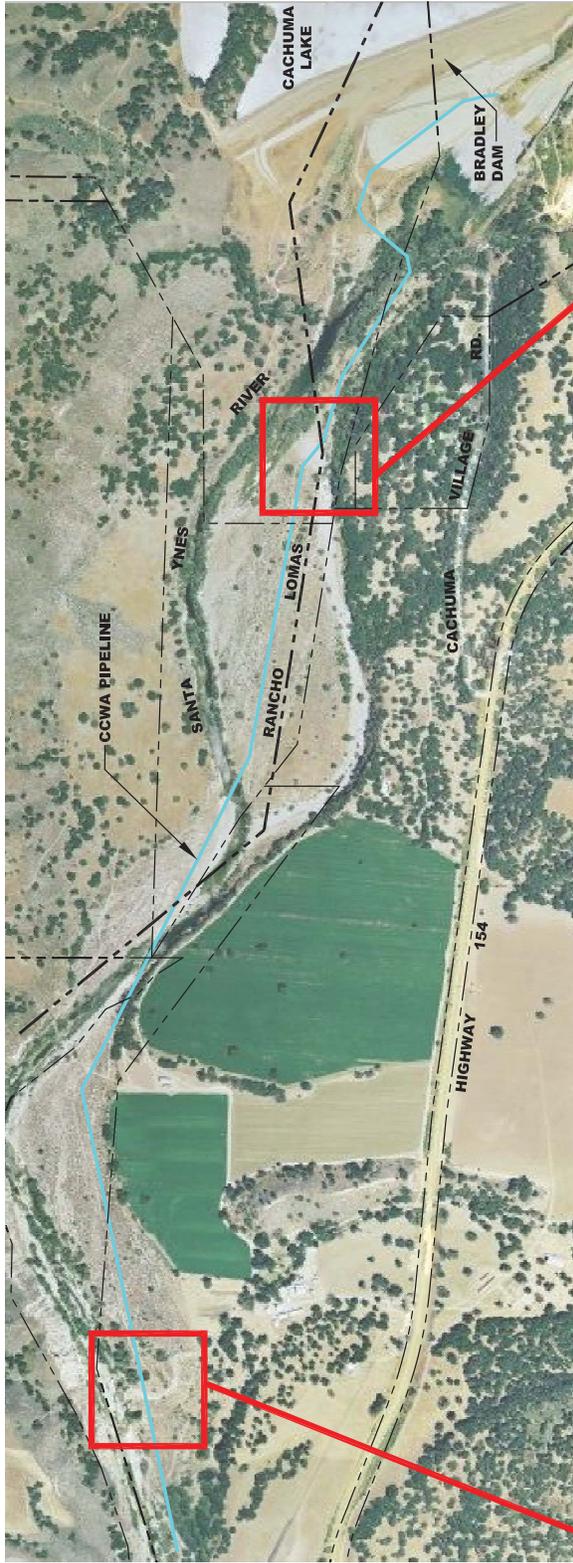


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GEOLOGIC MAP
 CCWA Pipeline Erosion Repair Project
 Santa Barbara County, California

Client: AECOM
 3044.084
 January 2010
 Plate 3

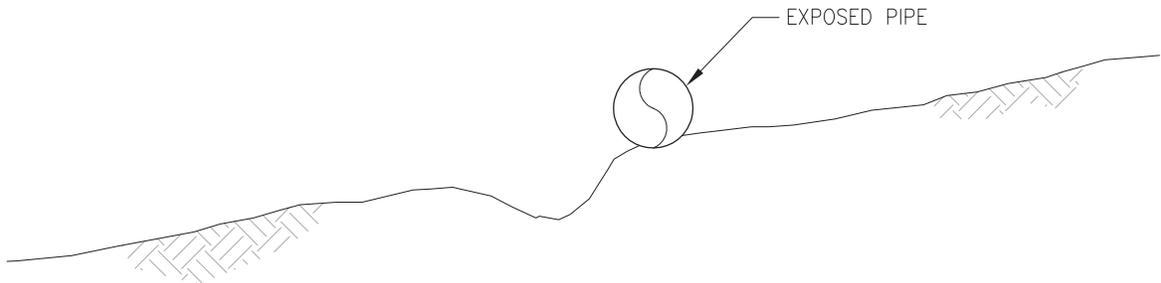
APPENDIX C
Preliminary Project Schedule



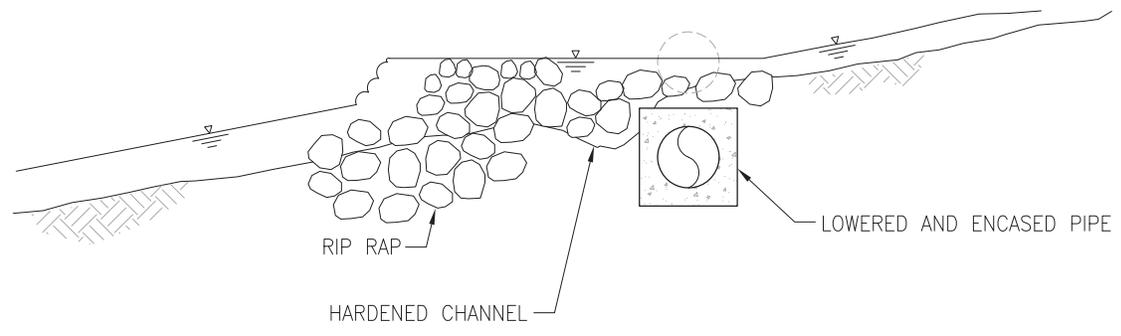
CENTRAL COAST WATER AUTHORITY
FIGURE 1
 LOCATION MAP
 3-8-10



EXISTING EXPOSED PIPE



LOWERED AND HARDENED PIPE

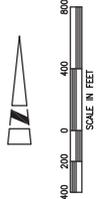
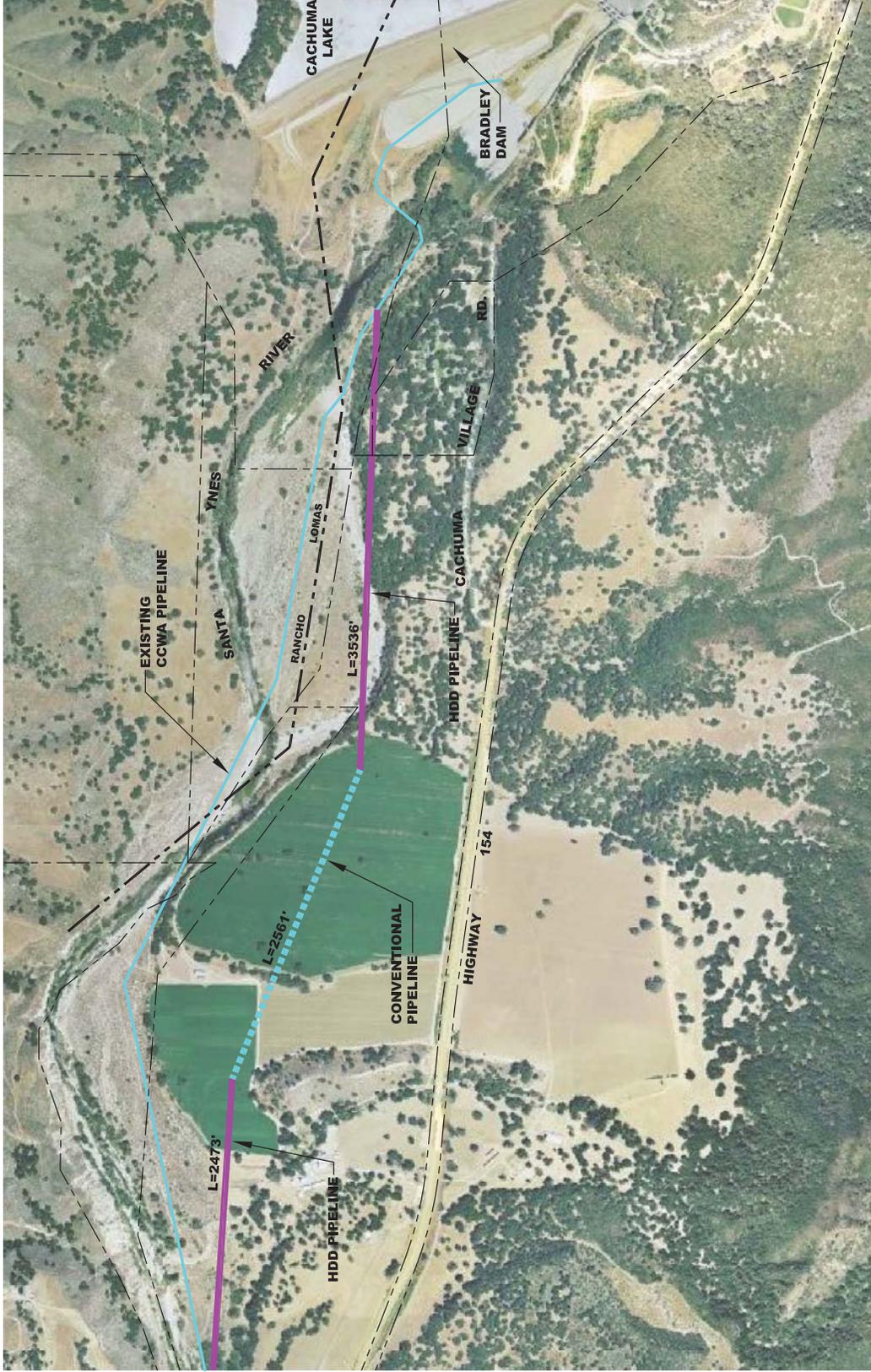


CENTRAL COAST WATER AUTHORITY

FIGURE 2
LOWERED AND HARDENED ALTERNATIVE

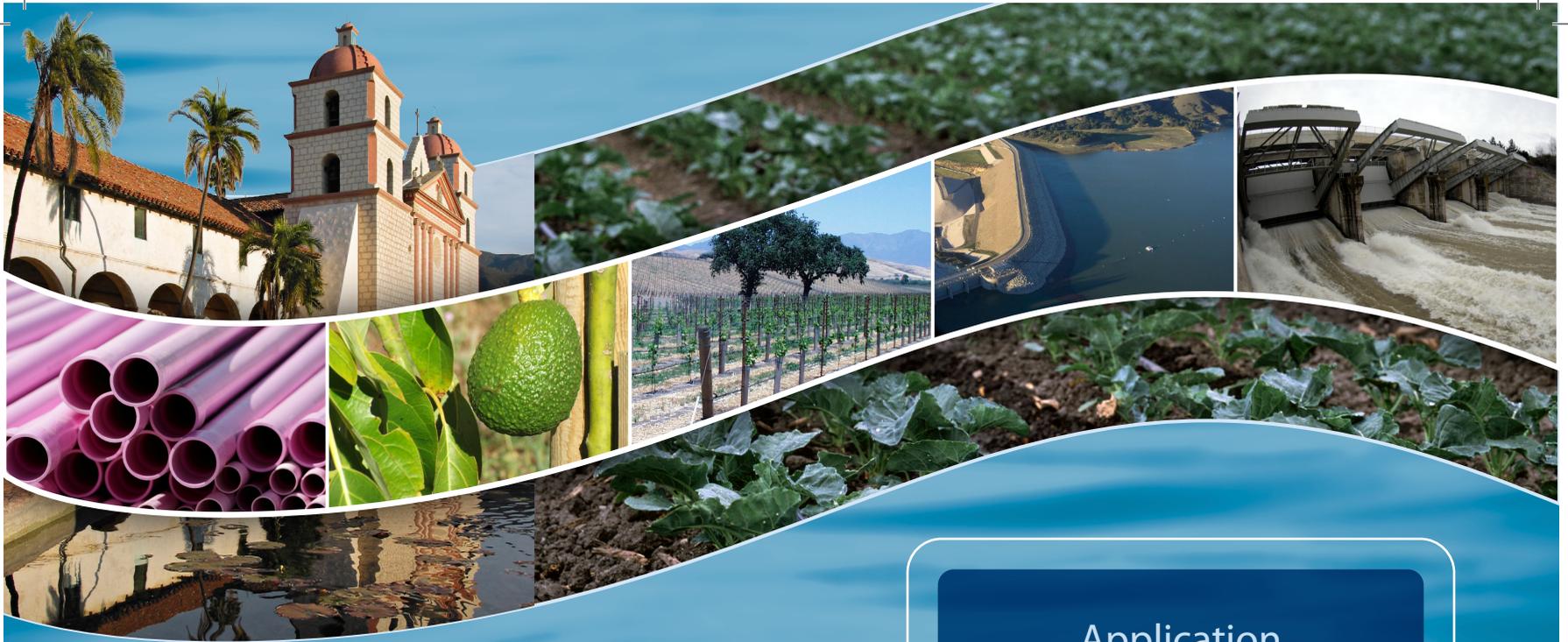
3-8-10





CENTRAL COAST WATER AUTHORITY
FIGURE 3
CONCEPTIONAL LONG TERM ALTERNATIVE
3-8-10





Santa Barbara County

Application
for
Proposition 84
Planning Grant
Round 1

Santa Barbara County
Cuyama
IRWM Plan 2012

**Santa Barbara County
Water Agency**



Prepared by

CH2MHILL

September 28, 2010

Task 4: Establish Data Management System

Introduction

The objective of this task is to establish a DMS, which will set up a process of data collection, storage, and dissemination to IRWM participants, stakeholders, the public, and the State. The type of data that will be included for dissemination may include technical information such as designs, feasibility studies, reports, and information gathered for a specific project in any phase of development including the planning, design, construction, operation, and monitoring of a project. This task will also include cross referencing of existing data in various databases such as:

The WDL that DWR maintains for the state, which stores data from various monitoring stations, including groundwater level wells, water quality stations, surface water stage and flow sites, rainfall/climate observers, and water well logs (<http://wdl.water.ca.gov/>).

The SWAMP created by SWRCB has standards required for any group collecting or monitoring surface water quality data, using funds from Propositions 13, 40, 50, and 84 (http://www.swrcb.ca.gov/water_issues/programs/swamp).

The GAMA program is maintained by the SWRCB and provides a comprehensive assessment of water quality in water wells throughout the State. GAMA has two main components, the California Aquifer Susceptibility (CAS) assessment and the Voluntary Domestic Well Assessment Project. The CAS combines age dating of water and sampling for low-level volatile organic compounds to assess the relative susceptibility of public supply wells throughout the State. Because water quality in individual domestic wells is unregulated, the program is voluntary and will focus, as resources permit, on specific areas of the State. Constituents to be analyzed include nitrate, total and fecal coliform bacteria, methyl tert-butyl ether, and minerals (<http://www.swrcb.ca.gov/gama>).

DWR maintains the Integrated Water Resources Information System (IWRIS), which is a data management tool for water resources data and not a database. IWRIS is a web based GIS application that allows entities to access, integrate, query, and visualize multiple sets of data simultaneously (<http://www.water.ca.gov/iwriss/>).

California Environmental Resources Evaluation System (CERES) is an information system developed and maintained by the California Natural Resources Agency to facilitate access to a variety of electronic data describing California's rich and diverse environments.

The DMS as proposed in the 2007 Santa Barbara IRWM Plan needs improvements to include or better provide access to more local water-related information. Currently, Santa Barbara County maintains existing water resources-related and IRWM-related data on the Santa Barbara County Water Agency website located at: <http://www.countyofsb.org/pwd/water/index.htm>. This site also provides the forum for sharing of reports, public meeting dates, agendas, meeting minutes, and annual reports. In-depth data are not currently stored on the website and the GIS capabilities are not explored extensively.

The objective of the DMS for IRWM Plan 2012 is to store project related data and make it publicly available, is to ensure efficient use of available data, stakeholder access to data, and to ensure the data generated by IRWM implementation activities can be

integrated into existing State databases. A part of the effort of this task will be to explore financial and staff resources to implement the scope under this task.

Task 4.1 *Review the Existing Data within the IRWM Region and Identify Data Needs*

This task includes identifying and analyzing documents and data that are pertinent to updating the IRWM Plan. The principal task will be to conduct review of previous studies, e.g., City of Santa Barbara's Water Supply Planning Study; SMVWCD annual report, Reports of Santa Barbara County, monitoring reports required by adjudicator. The data gaps/data needs within the IRWM region will be identified from the existing documents.

Where appropriate, data management will be coordinated with State and Federal databases in a format consistent with SWAMP and GAMA.

Task 4.2: *Develop a Web-based DMS*

One of the objectives of the DMS is to make the data publicly available. This task includes development of a web-based DMS with easy access to the participating agencies including stakeholders. The DMS will serve as a data repository for various types of data (for example, project related data, water quality data). Depending on the type of data, the components and protocols for data assimilation from various sources into the DMS will be developed. For example, a library of information for spatial data can be compiled into a Geographic Information System (GIS) on a project by project basis and shared with the stakeholders.

The RWMG will decide on the use of an appropriate website for developing the DMS. The existing system on the website management will be explored at the time of implementation of DMS. For example, the existing Santa Barbara County Water Agency website located at: <http://www.countyofsb.org/pwd/water/index.htm> also may serve as a resource for the development of the DMS. This site may also be continued to provide the forum for sharing of reports, public meeting dates, agendas, meeting minutes, and annual reports. All data used to support development of the IRWM will be outlined in a database and available for review on the website, which will provide links to information available on partner agency websites. Any required documentation of Proposition 50 will be made available on the DMS website by appropriate project administrators.

Task 4.3 *Establish Typical Data Collection Technique*

For data gathering a common data collection protocol will be developed to keep the web-based DMS up-to-date. The protocol will describe the use of common and compatible methods for data gathering, analysis, monitoring, and reporting formats. The data collection technique will be developed in such a way that any update on the website will be notified automatically to all the participating stakeholders to bring their attention on the changes made on the data bank.

Task 4.4 Develop Procedure for Adding Data to the DMS

Separate account login information and the website links will be set up to provide access to the DMS for all the stakeholders. Guidelines for uploading the information to the DMS will be developed. Stakeholders will access the website to retrieve information and/or contribute data to the DMS using their account login information.

Task 4.5 Maintain the DMS

The responsibilities for maintenance of the DMS will be explored by the RWMG. The RWMG will select the best approach for maintaining the DMS. This task will include the following:

Develop guidelines for maintaining the DMS system

Update information as it becomes available

Update calendar of meetings and workshops to inform the stakeholders for the upcoming events

Encourage participation from various stakeholders

Resolve any data management related issues

Task 4.6 Data Quality Assurance/Quality Control

Quality assurance/quality control (QA/QC) of data is a major task that involves reviewing the quality of data. This task includes description of the validation or quality assurance/quality control measures that will be implemented by the RWMG for data generated and submitted for inclusion into the DMS.

Under the QA/QC task an effort will be taken to update the datasets and to prepare a consistent format for all types of data.

Task 4.7 Data Sharing

This task includes a protocol preparation on how data collected for IRWM project implementation will be transferred or shared between members of the RWMG and other interested parties throughout the IRWM region, including local, State, and federal agencies. The data saved in the DMS will be distributed to the stakeholders. Efforts will be made to keep compatibility with the State databases including SWAMP, WDL, GAMA program, CEIC, and the CERES.

RWMG and public workshops will serve as the primary venue for information sharing. Other settings where information can be shared include quarterly project progress meetings, monthly agency coordination meetings, e-mail subscription lists, and monthly e-mail newsletters. These forums will serve to continue to facilitate the ongoing data sharing between stakeholders as well as the expansion of the existing Water Agency data warehousing activities.