# SACRAMENTO COUNTY WATER AGENCY

# 2005 ZONE 41 URBAN WATER MANAGEMENT PLAN

Sacramento County Water Agency

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# Table of Contents

Sacramento County Water Agency ..... i
1. Introduction ..... 1-1
1.1 Requirement for an UWMP ..... 1-1
1.2 Purpose of the Zone 41 UWMP ..... 1-2
1.3 Preparation and Implementation of the Plan ..... 1-4
1.3.1 Coordination with Other Agencies ..... 1-4
1.3.2 Public Participation ..... 1-4
1.3.3 Water Forum ..... 1-6
1.3.4 Formation of SCWA ..... 1-6
1.3.5 Formation and Purpose of Zone 41 ..... 1-7
1.3.6 Formation and Purpose of Zone 40 ..... 1-7
1.3.7 Formation and Purpose of Zone 50 ..... 1-10
1.4 Demographics ..... 1-10
1.4.1 Population ..... 1-10
1.4.2 Climate ..... 1-11
2. Water Supplies ..... 2-1
2.1 Water Supply Sources ..... 2-1
2.1.1 Zone 40 Surface Water Supplies ..... 2-1
2.1.2 Zone 50 Surface Water Supplies ..... 2-2
2.1.3 Other Sources of Surface Water ..... 2-3
2.2 Groundwater Supplies ..... 2-5
2.2.1 Groundwater Management Plans ..... 2-6
2.2.2 Groundwater Production ..... 2-7
2.3 Water Reliability ..... 2-8
2.4 Transfer and Exchange Opportunities ..... 2-13
2.5 Water Use by Customer-type ..... 2-16
2.6 Water Conservation ..... 2-19
2.6.1 Demand Management Measures /Best Management Practices ..... 2-19
2.7 Water Supply Projects and Programs ..... 2-20
2.7.1 Groundwater Facility Component ..... 2-20
2.7.2 Surface Water Facility Component ..... 2-21
2.7.3 Wholesale Water ..... 2-23
3. Water Shortage Contingency Plan ..... 3-1
3.1 Stages of Action ..... 3-1
3.2 Estimate of Minimum Supply for the Next Three Years ..... 3-2
3.3 Catastrophic Supply Interruption Plan ..... 3-3
3.3.1 Catastrophic Preparedness ..... 3-3
3.3.2 Catastrophic Supply Interruption ..... 3-5
3.4 Prohibitions, Penalties, and Consumption Reduction Methods ..... 3-5
3.5 Analysis of Revenue Impacts of Reduced Sales During Shortages ..... 3-8
3.6 Draft Ordinance and Use Monitoring Procedure ..... 3-9
3.6.1 Draft Ordinance ..... 3-9
3.6.2 Use Monitoring Procedures ..... 3-9
4. Recycled Water Plan ..... 4-1
4.1 Sacramento Regional County Sanitation District Recycled Water Program ..... 4-1
4.2 Wastewater Quantity and Quality ..... 4-3
4.2.1 SRCSD Regional Wastewater Treatment Plant (Regional Plant) ..... 4-3
4.2.2 SRCSD Wastewater Flow Projections 2000 - 2030 ..... 4-4
4.3 Current, Potential, and Projected Use ..... 4-5
4.3.1 SRCSD Water Recycling Program – Phase I ..... 4-5
4.3.2 SRCSD Water Recycling Program – Phase II ..... 4-6
4.3.3 SRCSD Water Recycling Master Plan – Planned Growth to 2030 ..... 4-6
4.3.4 Impediments to Recycled Water Implementation ..... 4-7

4.3.5 Economic Incentives to Develop Recycled Water Supplies ..... 4-7
5. Water Reliability ..... 5-1
5.1 Water Quality Impacts on Reliability ..... 5-1
5.1.1 Groundwater ..... 5-1
5.1.2 Surface Water ..... 5-4
5.1.3 Recycled Water ..... 5-5
5.2 Water Service Reliability ..... 5-5
5.2.1 Normal Year and Single Dry Year Water Supply and Demand ..... 5-7
5.2.2 Multiple-Dry-Year Historical Sequence over Planning Period to 2030 ..... 5-11
6. Adoption and Implementation of UWMP ..... 6-1
7. Miscellaneous Provisions ..... 7-1

# List of Tables

Table 1-1: Coordination with Other Agencies ..... 1-5
Table 1-2: Population - Current and Projected ..... 1-11
Table 1-3: Climate ..... 1-12
Table 2-1: Current and Planned Water Supplies – (AF/Year) ..... 2-4
Table 2-2: Amount of Groundwater Pumped – (AF/Year) ..... 2-8
Table 2-3: Amount of Groundwater Projected to be Pumped - (AF/Year) ..... 2-8
Table 2-4: Supply Reliability for 2030 – (AF/Year) ..... 2-12
Table 2-5: Basis of Water Year Data ..... 2-12
Table 2-6: Describe the Factors Resulting in Inconsistency of Supply ..... 2-12
Table 2-7: Transfer and Exchange Opportunities – (AF/Year) ..... 2-13
Table 2-8: Past, Current, and Projected Water Deliveries ..... 2-17
Table 2-9: Sales to Other Agencies – (AF/Year) ..... 2-18
Table 2-10: Additional Water Uses and Losses - (AF/Year) ..... 2-18
Table 2-11: Total Water Use – (AF/Year ) ..... 2-18
Table 2-12: Future Water Supply Projects ..... 2-22
Table 2-13: Agency Demand Projections Provided to Wholesale Suppliers – (AF/Year) ..... 2-24
Table 2-14: Existing and Planned Sources of Wholesale Water Available to SCWA – (AF/Year) ..... 2-24
Table 2-15: Wholesale Supply Reliability - % of normal supply ..... 2-25
Table 2-16: Factors Resulting in Inconsistency of Wholesaler's Supply ..... 2-25
Table 3-1: Water Supply Shortage Stages ..... 3-1
Table 3-2: Three-Year Estimated Minimum Water Supply – (AF/Year) ..... 3-3
Table 3-3: Mandatory Prohibitions ..... 3-7
Table 3-4: Consumption Reduction Methods ..... 3-7
Table 3-5: Penalties and Charges ..... 3-8
Table 3-6: Changes in Revenue and Cost due to Demand Reductions ..... 3-9
Table 3-7: Water Use Monitoring Mechanisms ..... 3-11
Table 4-1: Participating Agencies ..... 4-3
Table 4-2: Wastewater Collection and Treatment - AF/Year ..... 4-5
Table 4-3: Disposal of Wastewater (non-recycled) - AF/Year ..... 4-5
Table 4-4: Actual Recycled Water Uses - AF/Year ..... 4-5
Table 4-5: Recycled Water Uses - Potential - AF/Year ..... 4-8
Table 4-6: Projected Future Use of Recycled Water in Service Area - AF/Year ..... 4-9
Table 4-7: Recycled Water Uses - 2000 Projection compared with 2004 actual - AF/Year ..... 4-9
Table 5-1: Normal Year Water Supply (AF/Year) ..... 5-9
Table 5-2: Normal Year Water Demand (AF/Year) ..... 5-9
Table 5-3: Normal Year Water Supply and Demand Comparison (AF/Year) ..... 5-9
Table 5-4: Single Dry Year Reliability Water Supply (AF/Year) ..... 5-10
Table 5-5: Single Dry Year Reliability Water Demand (AF/Year) ..... 5-10
Table 5-6: Single Dry Year Reliability Water Supply and Demand Comparison (AF/Year) ..... 5-10
Table 5-7: Projected Supply During Multiple Dry Year Hydrologic Period (AF/Year) ..... 5-11
Table 5-7 Continued: Projected Supply During Multiple Dry Year Hydrologic Period (AF/Year) ..... 5-12

Table 5-8: Projected Demand during Multiple Dry Year Hydrologic Period (AF/Year) ..... 5-13
Table 5-8 Continued: Projected Demand during Multiple Dry Year Hydrologic Period (AF/Year)..... 5-13
Table 5-9: Projected Demand and Supply Comparison During Multiple Dry Year Hydrologic Period (AF/Year) 5-14
Table 5-9 Continued: Projected Demand and Supply Comparison During Multiple Dry Year Hydrologic Period (AF/Year) ..... 5-14
Table 5-10: Projected supply during multiple dry year period ending in 2015 – (AF/Year)..... 5-15
Table 5-11: Projected demand multiple dry year period ending in 2015 – (AF/Year) ..... 5-15
Table 5-12: Projected Supply and Demand Comparison during multiple dry year period ending in 2015- (AF/Year) ..... 5-15
Table 5-14: Projected supply during multiple dry year period ending in 2020 – (AF/Year)..... 5-16
Table 5-14: Projected demand multiple dry year period ending in 2020 - (AF/Year)..... 5-16
Table 5-15: Projected Supply and Demand Comparison during multiple dry year period ending in 2020- (AF/Year) ..... 5-16
Table 5-16: Projected supply during multiple dry year period ending in 2025 - (AF/Year)..... 5-17
Table 5-17: Projected demand multiple dry year period ending in 2025 - (AF/Year)..... 5-17
Table 5-18: Projected Supply and Demand Comparison during multiple dry year period ending in 2025- (AF/Year) ..... 5-17
Table 5-19: Projected supply during multiple dry year period ending in 2030 - (AF/Year)..... 5-18
Table 5-20: Projected demand multiple dry year period ending in 2030 - (AF/Year)..... 5-18
Table 5-21: Projected Supply and Demand Comparison during multiple dry year period ending in 2030- (AF/Year) ..... 5-18

# List of Maps

Map 1-1: Location Map of Zone 41 Service Areas ..... 1-3
Map 1-2: Location of Map of Zone 40 and Zone 50 ..... 1-9
Map 4-1: SCWA Zone 41 Service Area vs. SRCSD Service Area ..... 4-2
Map 5-1: Wells Affected by Arsenic Contamination ..... 5-3
Map 5-2: Existing and Future River Diversion Locations and Surface Water Treatment Plants ..... 5-6

# List of Figures

Figure 5-1: Zone 41 (Zone 40 South Service Area Capacity Only) and Water Quality Impacts from Arsenic..... 5-4
Figure 5-2: Zone 40 Conjunctive Use Program Over Planning Period..... 5-8

**APPENDICES**

A. 2005 Urban Water Management Plan Checklist
B. Central Sacramento County Groundwater Forum Agenda for October 27, 2005
C. Sacramento Groundwater Authority Groundwater Management Plan
D. Zone 40 Groundwater Management Plan
E. California Urban Water Conservation Council BMP Activity Reports for 2001-2002 and 2003-2004
F. Sample Water Shortage Advisory Notice and Sample Water Shortage Contingency Plan
G. SCWA Board of Directors Board Letter

## Abbreviations and Acronyms

AF – Acre Feet

AF/year – Acre Feet per Year

ASWC – American States Water Company

Cal-Am – California-American Water Company

Central Basin – Central Sacramento County Groundwater Basin

CSCGF – Central Sacramento County Groundwater Forum

CSCGMP – Central Sacramento County Groundwater Management Plan

CVP – Central Valley Project

DHS – Department of Health Services

DWR – State Department of Water Resources

EBMUD – East Bay Municipal Utility District

EIR – Environmental Impact Report

ETo – Evapotranspiration

FRWA – Freeport Regional Water Authority

FRWP – Freeport Regional Water Project

GMP – Groundwater Management Plan

GPM – Gallons Per Minute

JPA – Joint Powers Authority

MG – Million Gallons

MGD – Million Gallons per Day

MOA – Memorandum of Agreement

M&I – Municipal and Industrial

Natomas – Natomas Mutual Water Company

NWS – National Weather Service

PG&E – Pacific Gas and Electric

P.L. – Public Law

POU – American River Place of Use

PSA – Purveyor Specific Agreement

RWQCB – Regional Water Quality Control Board

SACOG – Sacramento Area Council of Local Governments

SCWA – Sacramento County Water Agency

SGA – Sacramento Groundwater Authority

SMUD – Sacramento Municipal Utility District

SRCSD – Sacramento Regional County Sanitation District

SRWTP – City of Sacramento's Sacramento River Water Treatment Plant

SSWD – Sacramento Suburban Water District

SWRCB – State Water Resources Control Board

TAF – Thousands of Acre-Feet

USBR – United States Bureau of Reclamation

UWMP – Urban Water Management Plan

WFA – Water Forum Agreement

WSIP – Water System Infrastructure Plan

WSMP – Zone 40 Water Supply Master Plan

WTP – Water Treatment Plant

WWTP – Wastewater Treatment Plant

SACRAMENTO COUNTY
WATER AGENCY

***Water Code section 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.*

# 1. Introduction

***The organization of this Urban Water Management Plan (UWMP or Plan) is similar to the State Department of Water Resources Guidelines for the development of an UWMP. When applicable, each section or subsection will always include the excerpt from the State Water Code in the left margin to provide the basis of the information contained within the section. In instances where specific Zone 41 information is not available to respond to the code excerpt, the Water Code section may still be included to be used as a reference on why the data is needed and will act as a catalyst to begin collecting data for future UWMP updates. In addition to the code excerpts, the UWMP will cite references in the text that are critical supporting documents in describing the quantity, availability, and reliability of the various water supplies. This also includes the projection of water demands and the various Zone 41 programs underway for increased water conservation and water shortage contingency plans.***

## 1.1 Requirement for an UWMP

All urban water suppliers in the State of California are required to prepare an UWMP and complete updates at least once every five years on or before December 31, in years ending in five and zero. As defined by the California Water Code (Section 10617) an "urban water supplier" is a supplier, either publicly or privately owned, that provides water to more that 3,000 customers or supplies more than 3,000 acre-feet of water annually on a wholesale or retail basis or both.

This 2005 UWMP has been prepared for Sacramento County Water Agency (SCWA) Zone 41, with service to nearly 40,000 connections and delivery of approximately 36,000 acre-feet of potable drinking water (2004). Zone 41 also wholesales water to other retail water agencies that depend in part or solely on Zone 41 supplies to meet their demands. The release of this UWMP is timely because of all the planning activities that SCWA is involved with in the Sacramento Region. Some of the more pertinent activities are listed below:

- Zone 40 Groundwater Management Plan (October 2004)
- Zone 40 Water Supply Master Plan (February 2005)
- Zone 40 Water Supply Infrastructure Plan (on-going)

*(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.*

***Water Code section 10621.***

*(a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.*

*(b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.*

*(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).*

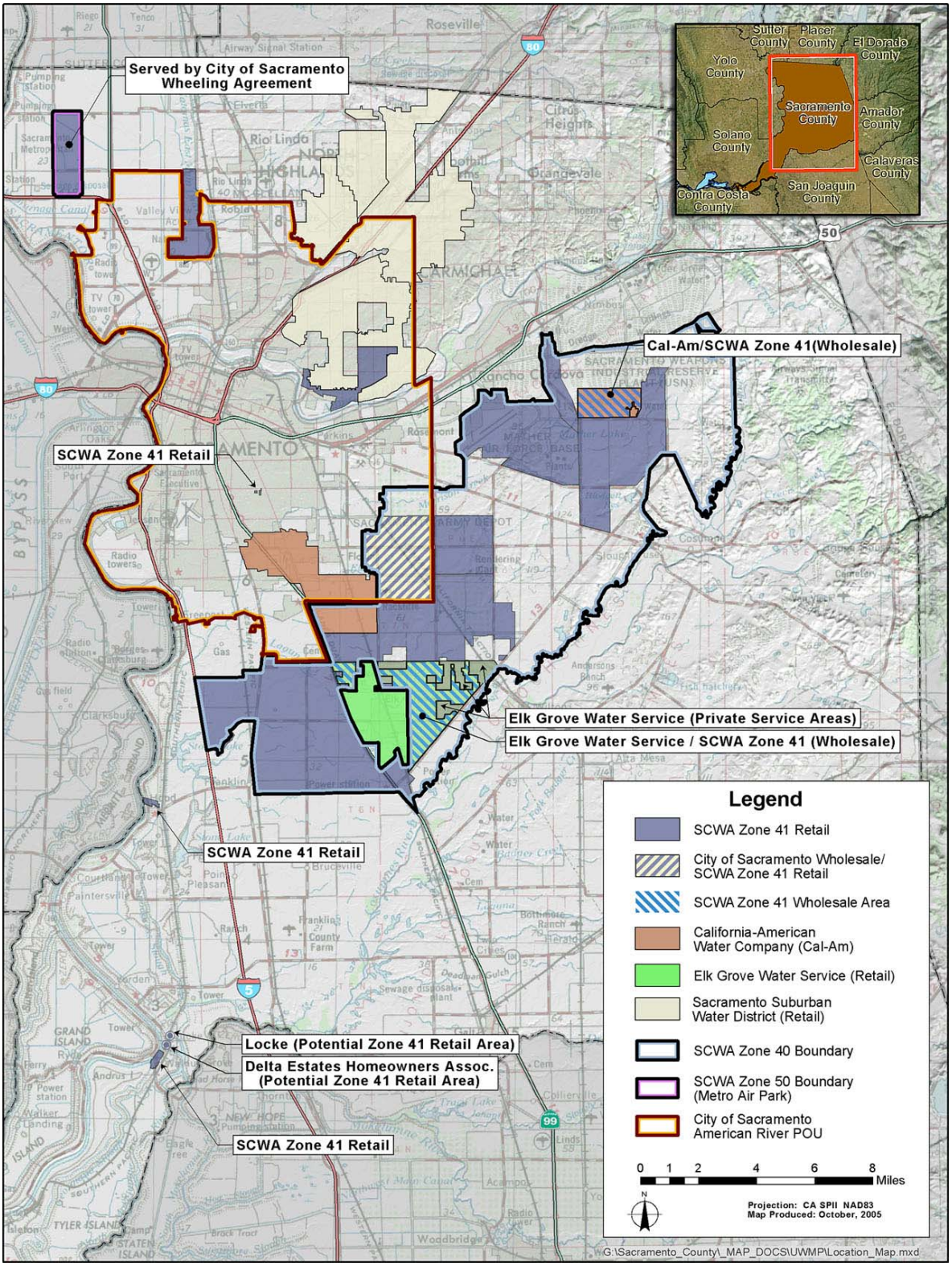
- Central and South Sacramento County Integrated Regional Water Management Plan Functionally Equivalent Document (July 2005)
- Central Sacramento County Groundwater Management Plan (on-going)
- Sacramento County General Plan Update (on-going)

## 1.2 Purpose of the Zone 41 UWMP

This UWMP is being developed by SCWA Zone 41 because of its retail and wholesale water responsibilities within its various service areas in Sacramento County (See **Map 1-1** for the location of the Zone 41 retail and wholesale areas). An UWMP contains information about an urban water supplier's water supplies, water supply reliability, water conservation, water shortage contingencies, and recycled water usage.

The UWMP is a valuable long-range planning document for water supply and is the foundation document for Water Supply Assessments (Senate Bill 610) Water Code §10613 *et seq.* (*Added by* Stats. 2001, c. 643), Written Verifications of Water Supply (SB 221) Water Code §66473.7 (*Added by* Stats. 2001, c. 642), and can serve as a one of many building blocks for one or more Integrated Regional Water Management Plans in Sacramento County. **Appendix A** contains a checklist of all of the UWMP requirements and the corresponding section references.

**Map 1-1: Location Map of Zone 41 Service Areas**



***Water Code section 10630.***

*It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.*

## *1.3 Preparation and Implementation of the Plan*

This section provides additional information regarding the process of developing the UWMP and a description of the agencies most relevant to the planning and activities related to the water service provided by Zone 41.

### 1.3.1 Coordination with Other Agencies

This UWMP has been prepared to include the entire retail and wholesale area of Zone 41. Those cities (Sacramento, Elk Grove, Rancho Cordova, and Folsom) and other agencies that have or will purchase water from or sell water to SCWA or have jurisdictional boundaries that overlap Zone 41's boundaries have been notified in writing of SCWA's intention of completing this UWMP. These letters indicated the projected adoption date of the UWMP and provided these agencies an opportunity to comment on the UWMP prior to adoption. The participation of these cities and agencies in the development or review of the UWMP are summarized in **Table 1-1.**

### 1.3.2 Public Participation

On December 6, 2005, SCWA's Board of Directors held a public hearing on the UWMP to allow members of the general public that would be affected by the Plan to comment. A notice of the date, time, and place of the hearing was published in the Sacramento Bee twice, the first two weeks prior and the second one week prior to the hearing. SCWA, in conjunction with the Water Forum Successor Effort, discussed progress on the UWMP at the public meeting held on October 27, 2005 for the Central Sacramento County Groundwater Forum (see agenda in **Appendix B**).

| Table 1-1: Coordination with Other Agencies | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Participated in UWMP development | Commented on the draft | Attended public meetings | Contacted for assistance | Received copy of the draft | Sent notice of intention to adopt | Not Involved / No Information |
| American States Water Company (Golden State Water Company) | | | ✓ | | | ✓ | |
| California-American Water Company | | | ✓ | | | ✓ | |
| City of Folsom | | | ✓ | | | ✓ | |
| City of Sacramento | | | ✓ | | | ✓ | |
| City of Rancho Cordova | | | | | | ✓ | |
| City of Elk Grove | | | ✓ | | | ✓ | |
| Sacramento Regional County Sanitation District | | | ✓ | | | ✓ | |
| Elk Grove Water Service | | | ✓ | ✓ | | ✓ | |
| Sacramento Municipal Utility District | | | | | | ✓ | |
| Aerojet | | | | | | ✓ | |
| Sacramento Groundwater Authority | | | | | | ✓ | |
| Natomas Mutual Water Company | | | | | | ✓ | |
| Sacramento Suburban Water District | | | | ✓ | ✓ | ✓ | |
| Delta Estates Home Owners Associations | | | | | | ✓ | |
| Locke Water Works | | | | | | ✓ | |
| East Bay Municipal Utility District | | | ✓ | | ✓ | ✓ | |
| Fruitridge Vista Water Company | | | | | | ✓ | |
| Omochumne-Hartnell Water District | | | | | | ✓ | |

*Table 1 will be updated as UWMP progresses through public hearing and adoption.*

### 1.3.3 Water Forum

Begun in 1993, the Water Forum process brought together a diverse group of stakeholders that included business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments to evaluate available water resources and the future water needs of the Sacramento metropolitan region. These stakeholders identified two co-equal objectives to guide the development of the Water Forum Agreement (WFA). These are:

- Provide a reliable and safe water supply for the region's economic health and planned development through the year 2030; and

- Preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

After a six-year consensus-based stakeholder process, the WFA was completed. The WFA prescribes a regional conjunctive use program for the lower American River and the connected groundwater basin. The Water Forum also completed an "Environmental Impact Report (EIR) for the Water Forum Proposal" (State of California Clearinghouse Number 95082041). This document was certified by the two lead agencies (the City and County of Sacramento) in December 1999.

The WFA includes Purveyor Specific Agreements (PSA) that define the benefits each water purveyor will receive as a stakeholder and actions each must take to receive these benefits. PSAs for the County of Sacramento/SCWA, City of Sacramento and the Sacramento Municipal Utility District (SMUD) also describe commitments by the City of Sacramento, SMUD, and SCWA to address issues related to wheeling and wholesaling of surface water, Central Valley Project (CVP) water transfers, and dry year water supply in Zone 41.

### 1.3.4 Formation of SCWA

SCWA was formed in 1952 by a special legislative act of the State of California (the Sacramento County Water Agency Act [Agency Act]). SCWA's purposes include, but are not limited to, the following:

Making water available for any beneficial use of lands and inhabitants, and

Producing, storing, transmitting, and distributing groundwater.

SCWA's boundaries include all of Sacramento County and is governed by a Board of Directors (ex officio, the Sacramento County Board of Supervisors [Board]). Under the Agency Act, the Board may contract with the federal government under reclamation laws with the same powers as irrigation districts, and with the State of California and federal government with respect to the purchase, sale, and acquisition of water. SCWA may also construct and operate any required capital facilities.

There are currently several benefit zones within SCWA that are related to water supply (Zone 13, Zone 40, Zone 41, and Zone 50). Each has a unique purpose and generates revenue internally for carrying out that purpose.

### 1.3.5 Formation and Purpose of Zone 41

SCWA Zone 41 is a retail water supplier that provides safe and reliable drinking water to its various service areas located in both the unincorporated and incorporated (i.e., the Cities of Elk Grove and Rancho Cordova) portions of the County. Service areas include a portion of Walnut Grove, Hood, Arden Park Vista, Northgate, Southwest Tract, Zone 50, and Zone 40, which will be described in the following section. Zone 41's various service area boundaries are shown on **Map 1-1**. Zone 41 is responsible for the operations and maintenance of all the water supply facilities within these service areas. Revenues are collected by utility charges, connection permit fees, construction water permits, and grants - all of which fund water supply capital facilities replacement design and construction and water supply facilities operations, maintenance, and administration. Water may come from wholesale water purveyors such as the City of Sacramento or American States Water Company (ASWC) or may be developed using Zone 41 owned facilities. Zone 41 retails and wholesales water to its defined service areas and to agencies where agreements are in place to purchase water from SCWA.

### 1.3.6 Formation and Purpose of Zone 40

Zone 40 was created by SCWA Resolution No. 663 in May 1985, which describes the exact boundaries of the zone and defines the projects to be undertaken as "... the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands

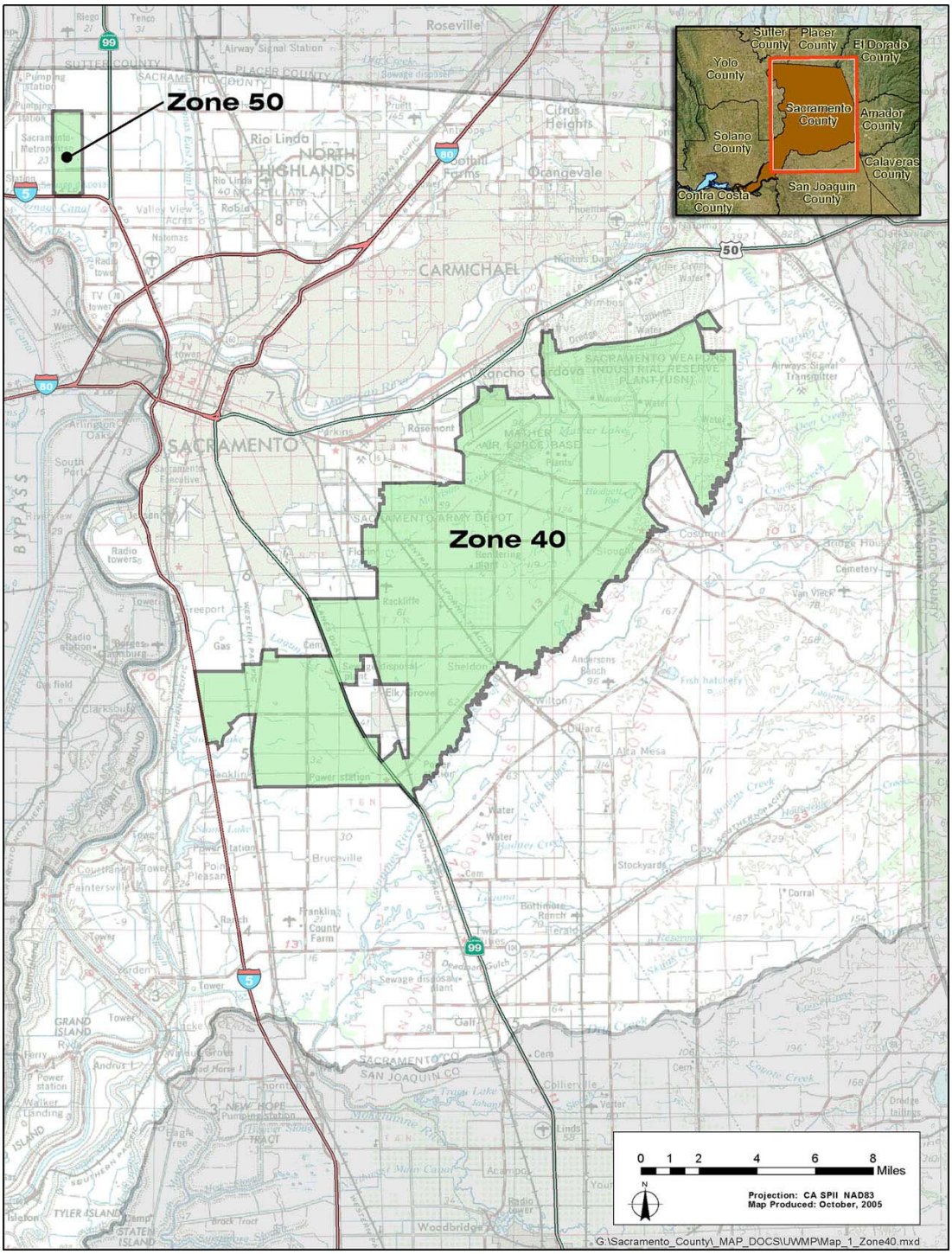
or inhabitants within the zone." The boundaries and scope of Zone 40's activities were expanded in April 1999 by Resolution WA-2331. Zone 40's scope now includes the use of recycled water in conjunction with surface water and groundwater. Upon completion of construction of Zone 40 water facilities, the facilities are granted over to Zone 41 for long term operations and maintenance and eventually replacement as facilities become older. There is also a portion of Zone 40 that is located within the City of Sacramento's American River Place of Use that will ultimately receive all of its water from City owned facilities by mutual agreement with SCWA.

Zone 40 is located in the central portion of Sacramento County (**Map 1-2**). While much of Zone 40 currently consists of rural land uses, (i.e., agricultural, agricultural/residential (ag/res), and conservation reserve), rapid urbanization is occurring within the City of Elk Grove in the East Franklin and Laguna Ridge areas, in the unincorporated areas of the Vineyard and Mather service areas, and in the City of Rancho Cordova within the Sunrise Douglas and Sunrise Corridor service areas.

Zone 40 generates revenue for its capital program through development fees and from special development capital fees collected bi-monthly from Zone 41 retail water service customers within Zone 40 and wholesale water service customers in the Elk Grove Water Service area.

For purposes of discussion in this Zone 41 UWMP, data will be presented as "inside Zone 40" and "outside Zone 40." Zone 41 includes all of Zone 40, but other areas (Walnut Grove, Hood, Northgate, Arden Park Vista, Zone 50, and Southwest Tract) are not part of Zone 40.

**Map 1-2: Location of Map of Zone 40 and Zone 50**



### 1.3.7 Formation and Purpose of Zone 50

Zone 50 was created by SCWA Resolution WA-2542 on June 1, 2004, which describes the exact boundaries of the zone and defines the projects to be undertaken as "… to provide a water system for Metro (Air Park) including but not limited to the fees necessary to fund such a system." Facilities within the system will be constructed by the developer and then dedicated over to SCWA. Zone 41 will be responsible for long term operations and maintenance of the system. Replacement and rehabilitation costs will be paid directly by Zone 41.

Zone 50 is located in northwestern Sacramento County, directly east of the Sacramento International Airport (**Map 1-2**). Development in Zone 50 will be primarily commercial and industrial.

Water for Zone 50 will come from the City of Sacramento in accordance with a wheeling/wholesale agreement approved by the Board in October 2004 (Resolution WA-2565). Zone 50 development fees and special development capital fees will be used to pay a City Water Connection Cost for increments of dedicated capacity as described in the agreement. Any raw water demands such as golf courses or public landscape areas will obtain water directly from raw water conveyance systems owned and maintained by the Natomas Central Mutual Water Company.

***Water Code section 10631.***

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

*(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

## *1.4 Demographics*

### 1.4.1 Population

Since 2000, the population of Sacramento County has increased by approximately 150,000. Much of the incorporated area in Sacramento County north of the American River is essentially built-out. Therefore, much of the growth within the County is occurring within the Zone 40/Zone 41 service area south of the American River. Population growth in this area is expected to continue at a rapid pace as the Cities of Elk Grove and Rancho Cordova continue to expand. The projected populations are shown in **Table 1-2.** These values were developed from data extracted from the Sacramento Area Council of Governments (SACOG) (Website is www.sacog.org).

### 1.4.2 Climate

Sacramento County, located in the heart of California's Central Valley, tends to have a mild climate. Typically the summers are warm with little to no rain, and winters tend to be wet, with much cooler temperatures. These data are summarized in **Table 1-3**. The minimal rain in the summer and regular rain in the winter effects water use in SCWA's service area as demand for landscape irrigation is high in the summer and low in the winter.

**Table 1-2: Population - Current and Projected**

| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
|---|---|---|---|---|---|---|
| **Service Area Population** | 134,307 | 182,422 | 239,567 | 288,652 | 337,500 | |

Note: 2030 is intentionally left blank because SACOG does not project population beyond 2025.

| Table 1-3: Climate | | | | |
|---|---|---|---|---|
| | Standard Monthly Average ETo[1] | Average Rainfall (inches)[2] | Average Max Temperature (Fahrenheit)[2] | Average Min Temperature (Fahrenheit)[2] |
| **January** | 1.59 | 3.69 | 53.3 | 39.5 |
| **February** | 2.2 | 3.2 | 59.6 | 43.1 |
| **March** | 3.66 | 2.64 | 64.8 | 45.7 |
| **April** | 5.08 | 1.4 | 71.1 | 48.4 |
| **May** | 6.83 | 0.62 | 78.1 | 52.4 |
| **June** | 7.8 | 0.15 | 85.8 | 56.8 |
| **July** | 8.67 | 0.01 | 91.5 | 59.1 |
| **August** | 7.81 | 0.03 | 90.4 | 58.6 |
| **September** | 5.67 | 0.31 | 86.2 | 57 |
| **October** | 4.03 | 0.93 | 76.7 | 51.6 |
| **November** | 2.13 | 2.02 | 64 | 44.5 |
| **December** | 1.59 | 3.14 | 54 | 39.9 |
| **Annual** | 57.06 | 18.15 | 73 | 49.7 |

Notes:

1. Source: CIMIS
2. Source: Western Regional Climate Center

***Water Code section 10631 continued…***

*(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision(a)... in five-year increments to 20 years or as far as data is available..*

# 2. Water Supplies

## *2.1 Water Supply Sources*

The water supply mix for Zone 41 is groundwater, recycled water, and surface water. Areas inside Zone 40 are served conjunctively with groundwater, surface water, and recycled water. Water supply for areas outside Zone 40 is generally 100 percent groundwater except where interconnections with adjacent purveyors exist and Zone 50. Interconnections such as with ASWC and Sacramento Suburban Water District (SSWD) may have a surface water component, and water provided to Zone 50 (Metro Air Park) by the City of Sacramento may be surface water or a combination of surface and groundwater. Groundwater supplies will be discussed in **Section 2.2** and recycled water will be discussed in **Section 4 – Recycled Water Plan**.

Surface water refers to water entitlements from the American and/or Sacramento rivers. All surface water supplies will require conventional treatment prior to distribution. Each of the surface water components is described briefly below.

### 2.1.1 Zone 40 Surface Water Supplies

**Appropriative Water**

SCWA has submitted an application to the State Water Resources Control Board (SWRCB) for the appropriation of water from the American and Sacramento rivers (the Board authorized submittal of this application on May 30, 1995). This water is considered "intermittent water" that typically would be available during the winter months of normal or wet years. This water could be used for groundwater recharge. The maximum, minimum, and average annual use of appropriative water is 71,000 AF, 0 AF, and 21,700 AF, respectively. In close to 30 percent of the years, 12,000 AF or less of appropriative water is used.

**CVP Supplies**

**SMUD 1 Assignment**

Under the terms of a three party agreement (SCWA, SMUD, and the City of Sacramento), and in accordance with SMUD's PSA, the City provides surface water to SMUD for use at two of SMUD's cogeneration facilities (because the cogeneration facilities are located within the City's American River POU, authorization by the SWRCB is not required). SMUD, in turn, will assign 15,000 AF/year of its Reclamation Central Valley Project (CVP) contract

water to SCWA for M&I use. This CVP contract assignment is complete.

SMUD 2 Assignment

SMUD's PSA directs SMUD to assign a second 15,000 AF/year to SCWA and for SCWA to construct groundwater facilities necessary to meet SMUD's dry year water shortages of up to 10,000 AF/year. This CVP contract assignment is complete.

CVP Water Public Law 101-514 ("Fazio" Water)

In April 1999, SCWA obtained a CVP water service contract pursuant to PL 101-514 that provides a permanent water supply to Zone 40 of 15,000 AF/year.

The maximum, minimum, and average annual use of CVP (SMUD 1, SMUD 2, and Fazio) water is 45,000 AF, 8,700 AF, and 38,000 AF, respectively. The 45,000 AF maximum reflects the firm supply of CVP water in most years. Lesser amounts result from CVP deficiencies in dry years.

### 2.1.2 Zone 50 Surface Water Supplies

City of Sacramento Wheeling/Wholesale Agreement

On October 12, 2004 SCWA, the County of Sacramento, and the City of Sacramento approved the Agreement between the City of Sacramento, the County of Sacramento, and the Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park. This agreement calls for the wholesaling of up to 9.28 million gallons per day of City supplied water to SCWA for Zone 50.

Natomas Mutual Water Company Surface Water Entitlements (Natomas)

Any raw water demands such as golf courses or public landscape areas will obtain water directly from raw water conveyance systems owned and maintained by Natomas.

Natomas has a contract for surface water rights for 55,000 AF in the Natomas area located just north of the City of Sacramento and extending into Sutter County. Natomas currently is a surface water purveyor for agricultural applications for land owners within their service area. Natomas' water supply is founded on a water rights settlement contract that includes six water right licenses and a water

right permit. Five of the licenses allow for irrigation, industrial, municipal, and domestic use. Natomas also has rights to winter diversions of up to 10,000 AF.

Natomas also has a contract with USBR for 120,200 AF/year of which 98,200 AF/year is base supply and 22,000 AF/year is CVP supply. Both contracts are subject to CVP shortage provisions.

### 2.1.3 Other Sources of Surface Water

Other sources of surface water include wholesale purchases of water from the City of Sacramento, ASWC, and SSWD. These wholesale purchases are discussed in **Section 2.4**.

**Table 2-1** summarizes the existing and future surface water supplies available to Zone 41.

| Table 2-1: Current and Planned Water Supplies – (AF/Year) | | | | | | |
|---|---|---|---|---|---|---|
| | 2005 | 2010 | 2015 | 2020 | 2025 | 2030/opt |
| U.S. Bureau of Reclamation – CVP Supply (SMUD 1, SMUD 2, and Fazio Water) | 45,000 | 45,000 | 45,000 | 45,000 | 45,000 | 45,000 |
| Appropriative Water Supplies | 14,586 | 14,586 | 14,586 | 14,586 | 14,586 | 14,586 |
| Wholesale Water Agreement to serve portion of Zone 40 in City's American River POU | 9,300 | 9,300 | 9,300 | 9,300 | 9,300 | 9,300 |
| Wholesale/Wheeling Water Agreement with the City of Sacramento to serve Zone 50 | 0 | 779 | 3,064 | 5,198 | 5,198 | 5,198 |
| Other Surface Water transfers into Zone 40[1] | 5,200 | 5,200 | 5,200 | 5,200 | 5,200 | 5,200 |
| Zone 40 Groundwater[2] | 40,900 | 40,900 | 40,900 | 40,900 | 40,900 | 40,900 |
| Zone 41 Groundwater[3] | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 |
| Replacement Water (Remediated GW) | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 | 15,000 |
| Recycled Water (projected use)[4] | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |

Notes:
1 –This water will be purchased only in Dry and Critically Dry years
2 – Long-term annual average
3 – For Northgate, Arden Park Vista, Hood, Walnut Grove, Locke (potential service area), Delta Estates (potential service area). Because these areas are built-out, the 2004 levels of groundwater production are assumed to remain constant.
4 – A master plan by SRCSD is currently underway to evaluate the potential of expanding recycled water deliveries.

***Water Code section 10631 (b) continued…***

*. . . . 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 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.*

*For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.*

## 2.2 Groundwater Supplies

Groundwater is a vital source of supply for Zone 41. Areas outside Zone 40 (with the exception of Zone 50) are completely reliant on groundwater, while inside Zone 40 groundwater currently makes up a substantial portion of the supply. As Zone 40 grows and surface water is brought in through the Freeport Regional Water Authority's (FRWA) project, groundwater will be seen as a supplement to surface water.

Zone 41 pumps groundwater from two groundwater sub-basins, as defined by DWR's Bulletin 113. Areas north of the American River (Northgate and Arden Park Vista) pump from the North American River Basin and areas south of the American River and north of the Cosumnes River (Zone 40, Walnut Grove, and Hood) pump from the South American River Basin. More detailed descriptions of these basins are provided below.

<u>North American River Basin</u>

The North American Subbasin is defined by DWR as the area bounded on the west by the Feather and Sacramento rivers, on the north by the Bear River, on the south by the American River, and on the east by the Sierra Nevada. Additional information about the subbasin includes:

- Surface Area: 548 square miles.
- The eastern basin boundary is a north-south line extending from the Bear River south to Folsom Reservoir. This represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada.
- The western portion of the subbasin consists of nearly flat flood basin deposits from the Bear, Feather, Sacramento and American rivers, and several small east side tributaries.

<u>South American River Basin</u>

The South American Subbasin is defined as the area bounded on the west by the Sacramento River, on the north by the American River, on the south by the Cosumnes and Mokelumne rivers, and

***Water Code section 10631 (b) continued…***

*(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. .*

on the east by the Sierra Nevada Range. Additional information about the subbasin includes:

- Surface Area: 388 square miles.
- The perennial rivers that surround the subbasin generally create a groundwater divide in the shallow subsurface. It is clear that there is interaction between groundwater of adjacent subbasins at greater depths.
- Average annual precipitation in the basin ranges from about 14 inches along the western boundary to greater than 20 inches along the eastern boundary.
- The eastern basin boundary is defined by the uprising foothills of the Sierra Nevada and is a north-south line extending from Folsom Reservoir south to the small community of Rancho Murieta. This represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada foothills. The western portion of the subbasin consists of nearly flat flood plain deposits from the Sacramento, American, and Cosumnes rivers, and several small east side tributaries.

### 2.2.1 Groundwater Management Plans

Zone 41 is a part of three groundwater management plan (GMP) efforts; Sacramento Groundwater Authority (SGA), Zone 40, and Central Sacramento County.

<u>SGA Groundwater Management Plan</u>
Areas within Sacramento County north of the American River fall under the purview of the SGA GMP which was completed in December 2003. The SGA groundwater basin is a portion of the North American River Basin and is referred to as the North Sacramento County Basin. The SGA GMP set Basin Management Objectives for groundwater elevations, groundwater quality, land subsidence, surface water flows, and groundwater/surface water interaction. A copy of the SGA GMP is included in **Appendix C**.

<u>Zone 40 Groundwater Management Plan</u>
In October 2004, SCWA adopted the Zone 40 GMP. This GMP contains more detailed information about Zone 40's groundwater

basin, groundwater supplies, and basin management objectives. The Zone 40 groundwater basin is a portion of the South American River Basin. A copy of the Zone 40 GMP is included in **Appendix D**.

Central Sacramento County Groundwater Management Plan

SCWA is currently working as part of the Central Sacramento County Groundwater Forum to develop the Central Sacramento County Groundwater Management Plan (CSCGMP). This plan includes various basin stakeholders groups including representatives of agricultural, agricultural-residential, urban, environmental, and business interests. This GMP will serve as the foundation for the governance authority to be put in place for the Central Sacramento County Groundwater Basin. The Central Sacramento County groundwater basin is a portion of the South American River Basin described above. Once complete (expected in early 2006) the CSCGMP will effectively subsume the previously adopted Zone 40 GMP.

### 2.2.2 Groundwater Production

When referring to the amount of groundwater pumping by Zone 41 the discussion will be split into two parts: areas inside Zone 40 and those outside Zone 40. The areas outside Zone 40 (i.e., Northgate, Arden Park Vista, Hood, and Walnut Grove) are essentially built-out, consequently, demand for water in these areas is basically static. For this UWMP these demands are assumed to remain static through 2030. Groundwater pumping within Zone 40 is more dynamic and is affected by urban growth, the availability of surface water, and restrictions agreed upon in the Water Forum.

Historical and projected groundwater pumping amounts are shown in **Tables 2-2** and **2-3**. As stated previously, areas outside Zone 40 are assumed to remain static. Groundwater within Zone 40 shows increasing groundwater pumping. Projection data for Zone 40 was taken from and is consistent with Zone 40's Water Supply Master Plan (WSMP).

| Table 2-2: Amount of Groundwater Pumped – (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Basin Name (s)** | **2000** | **2001** | **2002** | **2003** | **2004** |
| **North American River Basin** | | | | | |
| Northgate | 1,025 | 1,097 | 950 | 1,097 | 1,297 |
| Arden Park Vista[1] | 3,899 | 4,305 | 4,084 | 3,936 | 4,393 |
| **South American River Basin** | | | | | |
| Zone 40 | 20,022 | 22,306 | 22,949 | 22,745 | 25,790 |
| Walnut Grove | n/a | n/a | n/a | n/a | 76 |
| Hood | 39 | 39 | 89 | 94 | 95 |
| **% of Total Water Supply** | 92% | 87% | 87% | 87% | 88% |

1 – Purchased 117 AF of water from SSWD in summer months. This supply is anticipated to be replaced with Zone 41 groundwater by 2007.

| Table 2-3: Amount of Groundwater Projected to be Pumped - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Basin Name (s)** | **2010** | **2015** | **2020** | **2025** | **2030/opt** |
| **North American River Basin** | | | | | |
| Northgate | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 |
| Arden Park Vista | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **South American River Basin** | | | | | |
| Zone 40 | 34,125 | 28,837 | 40,470 | 31,324 | 39,097 |
| Walnut Grove | 76 | 76 | 76 | 76 | 76 |
| Hood | 95 | 95 | 95 | 95 | 95 |
| Locke (potential service area) | 100 | 100 | 100 | 100 | 100 |
| Delta Estates (potential service area) | 50 | 50 | 50 | 50 | 50 |
| **% of Total Water Supply** | 68% | 39% | 44% | 32% | 36% |

***Water Code section 10631 continued…***

*(c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

*(1) An average water year.*

*(2) A single dry water year.*

*(3) Multiple dry water years.*

## *2.3 Water Reliability*

**EFFECTS OF WFA IMPLEMENTATION**

In general, the intent of the WFA is to implement a conjunctive use program throughout a large portion of Sacramento County both north and south of the American River that will increase the use of groundwater (and decrease the use of surface water) in dry years and increase the use of surface water (and decrease the use of groundwater) in wet years. The decrease in dry year surface water diversions is a consequence of the WFA objective to improve in-stream flows in the lower American River for environmental purposes. In wet years, when more surface water is available, diversions will be increased promoting recharge of the groundwater

***Water Code section 10631 continued…***

*For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable*

basin. According to the WFA, the long-term average annual yield from the Central Basin is 273,000 AF/year. For the Zone 40 portion of the basin, a long-term average annual yield of 40,900 AF/year of groundwater has been identified in the WSMP.

**Table 2-4** reflects this conjunctive use pattern in Zone 40 where, in normal years, groundwater use averages 39,000 AF/year. In dry years, when surface water availability is limited (see Zone 40 surface water in **Table 2-6**), groundwater production increases to 70,000 AF/year to make up for the reduction in surface water. In all consecutive dry years, water demand management programs are also implemented to a higher degree to reduce the potential impacts from increased groundwater extractions.

All Zone 41 service areas are served with firm water supplies either with groundwater only or groundwater used to supplement surface water (subject to curtailments) to meet any surface water deficiencies (see **Table 2-4**). The reduction in supply in dry years is a result of water demand management programs being exercised at a higher level.

## WATER YEAR TYPES

The WFA identifies three principal water year types. These year types are based on estimated March through November unimpaired inflow into Folsom Reservoir and are categorized as wet/average year, drier year, and driest year. These criteria are used in defining the availability of surface water supplies.

## FUTURE FACILITIES AND OPERATIONS

As water demands increase through new development, the need for additional supplies and facilities become imperative. Supplies to meet these demands will come from groundwater, surface water, and recycled water.

2030 groundwater extraction capacity in Zone 40 is projected to be 126 MGD. This capacity provides some redundancy during maximum day demands in the event that little or no surface water is available in dry and critical years.

The schedule of surface water diversions for Zone 40 was determined using a computer model of Zone 40's water system. Zone 40's diversion schedule for surface water and the use of groundwater and recycled water were simulated based on 70-years of historical hydrology.

In the model, Zone 40's potable water demand was assumed to be 108 TAF/yr in all years, reflecting build-out demands. Recycled water demands are assumed to be 4.4 TAF/yr. Surface water delivery to Zone 40 was comprised of up to 11 MGD of the City of Sacramento's Sacramento River WTP's (SRWTP) capacity and SCWA's 85 MGD Central WTP. It was further assumed that the Central WTP's capacity is reduced by 20 percent during wet months of wet years to accommodate for high turbidity and scheduled maintenance.

Sources of surface water defined in the model include the following:

- Three CVP water supply contracts: Fazio (15 TAF/year), SMUD 1 (15 TAF/year) and SMUD 2 (15 TAF/year);
- "Excess Water", defined as appropriated water in excess of the amount required to maintain the Sacramento – San Joaquin Delta in balance; and
- Potential water transfers, purchases from the City of Sacramento or additional appropriated water, referred to as "Other Water."

The timing and amount of surface water available from each source is based on estimates of their reliable yield, as determined by CALSIM II modeling. CALSIM II is a generalized water resources simulation model for evaluating operational alternatives of large, complex river basins. CVP sources are assumed to be subject to deficiencies based on hydrologic conditions evaluated under CALSIM. "Other Water" supplies are considered to be the most reliable of supplies, but for the purposes of the modeling, available CVP water and Excess Water are utilized first.

Underlying all operational scenarios is the assumption that SCWA will have access to a long-term average of 40,900 AF/year of groundwater. This value is based on calculations made during the Water Forum process and is consistent with the WFA. In years when sufficient surface water is available, groundwater can be "banked" as in-lieu storage for use during dry years. The sustainable yield objectives of the groundwater basin are met when the average long-term yield over the modeled 70-year hydrologic period does not exceed 40,900 AF/year.

Groundwater recharge ("direct recharge") may be considered in the future as a way to further enhance SCWA's conjunctive use program within the Central Basin. Direct recharge could consist of injection wells, spreading basins within the Cosumnes River

floodplain, or direct discharge into the Cosumnes River to recharge the aquifers underlying the Central Basin. Water could potentially be obtained from either "Appropriative" or "Other" surface water sources, depending on availability. Treatment of surface water and approval by the Regional Water Quality Control Board (RWQCB) would be required prior to injection into the aquifer. The potential availability and use of recycled water within Zone 40 for landscape irrigation and other non-potable uses beyond existing agreements will be discussed by SCWA and SRCSD in the future.

**WATER USE BY YEAR TYPE**

***Water Use in Wet/Average Years.*** In wet/average years, which occur in 64 percent of the years (i.e., the 70-year hydrologic period), surface water diversions will be maximized. In those years, surface water use by SCWA within Zone 40 will total approximately 78,000 AF/year to 84,000 AF/year.

Supplemental supplies including groundwater, recycled water, and water conservation will make up the difference between demands and available surface water supplies. In wet/average years, the need for supplemental supplies is estimated to be approximately 30,000 AF/year and is generally assumed to be met with groundwater supplies. It should be noted that this is well below Zone 40's estimated long-term average use of 40,900 AF/year.

***Water Use in Drier Years.*** In drier years, which occur in 28 percent of the years, surface water diversions will be less than in wet/average years, ranging from 44,000 to 78,000 AF/year. Supplemental supplies will make up the difference between demands and available surface water supplies. The need for supplemental supplies is estimated to be up to 56,000 AF/year. It should be noted that in drier years, the groundwater extraction rate exceeds Zone 40's estimated long-term average use of 40,900 AF/year.

***Water Use in Driest Years.*** In the driest years, which occur in only 8 percent of the years, surface water diversions will be minimized, totaling 27,000 AF/year. In the driest years, the need for supplemental supplies will increase to 82,000 AF/year. The majority of these supplemental supplies will be derived from groundwater extraction, exceeding the 40,900 AF/year estimated long-term average use.

| Table 2-4: Supply Reliability for 2030 – (AF/Year) | | | | | | |
|---|---|---|---|---|---|---|
| | | | Multiple Dry Water Years | | | |
| Water Supply Sources | Normal Water Year | Single Dry Water Year | Year 1 | Year 2 | Year 3 | Year 4 |
| Zone 40 Surface Water | 69,567 | 34,683 | 26,106 | 26,106 | 23,183 | 20,909 |
| Zone 40 Groundwater | 39,097 | 68,327 | 65,599 | 65,599 | 68,522 | 70,795 |
| Zone 40 Recycled Water | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| Zone 50 Surface/Groundwater | 5,195 | 5,195 | 4,416 | 4,416 | 4,416 | 4,416 |
| Northgate Groundwater | 1,300 | 1,235 | 1,105 | 1,105 | 1,105 | 1,105 |
| Arden Park Groundwater | 4,400 | 4,180 | 3,740 | 3,740 | 3,740 | 3,740 |
| Hood Groundwater | 100 | 95 | 85 | 85 | 85 | 85 |
| Walnut Grove Groundwater | 76 | 76 | 76 | 76 | 76 | 76 |
| Southwest Tract | 59 | 59 | 59 | 59 | 59 | 59 |
| Locke Groundwater (potential service area) | 100 | 100 | 100 | 100 | 100 | 100 |
| Delta Estates Groundwater (potential service area) | 50 | 50 | 50 | 50 | 50 | 50 |
| % of Normal | 100% | 95% | 85% | 85% | 85% | 85% |

| Table 2-5: Basis of Water Year Data | | |
|---|---|---|
| Water Year Type | Base Year (s) | Historical Sequence |
| Normal Water Year | 1981 | 1961-1991 |
| Single-Dry Water Year | 1989 | |
| Multiple-Dry Water Years | 1987-1990 | |

| Table 2-6: Describe the Factors Resulting in Inconsistency of Supply | | | | |
|---|---|---|---|---|
| Name of supply | Legal | Environmental | Water Quality | Climatic |
| Zone 40 Surface Water | | CVP dry year cutbacks | | CVP dry year cutbacks |
| City of Sacramento American River POU Water | WFA | | | Dry and Critical Years require that the City curtail diversions at their Fairbairn WTP on the American River to 100 MGD. Additional supplies may be made up by either of the Sacramento River Diversions (existing and future) |

***Water Code section 10631***

*(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.*

## 2.4 Transfer and Exchange Opportunities

**Additional Water Demands**

In addition to meeting water demands within Zone 40, SCWA has entered into agreements that require delivery of water to purveyors and environmental interests outside Zone 40. Details of these agreements are discussed below.

**Table 2-7: Transfer and Exchange Opportunities – (AF/Year)**

| Source Transfer Agency | Transfer or Exchange | Short term | Proposed Quantities | Long term | Proposed Quantities |
|---|---|---|---|---|---|
| Other Water[1] | Transfer | ✓ | 5,200 | | |
| Aerojet & Boeing | Exchange | ✓ | Under negotiation | ✓ | Under negotiation |
| American States Water Company | Exchange | | | ✓ | 15,200 |
| Cal-Am | Exchange | | | ✓ | 5,000 |
| Environmental Restoration along Lower Cosumnes River | Exchange | ✓ | 5,000[2] | | |
| SMUD | Transfer | | | ✓ | 10,000 |
| **Total** | | | | | |

1. Transfer opportunities in the Sacramento River Watershed for Pre-1914 Water Rights
2. This is a temporary contract agreement that may be renegotiated after five years.

***Aerojet & Boeing Agreements***

The Aerojet and Boeing agreements transfer ownership of remediated groundwater (and potentially Aerojet's surface water contract with the City of Folsom) to SCWA to be used as a replacement water supply for groundwater capacity lost by SCWA, American States and Cal-Am as a result of groundwater contamination. While these agreements are not specific on how these replacement water supplies will be delivered to the affected purveyors or how much water is needed; they do establish general criteria for how the water will be allocated. The highest priority is meeting all replacement water supply needs; secondly, potable water to meet Aerojet's new development water needs (i.e., Rio del Oro and Westborough); thirdly, potable water for other new development; and lastly environmental water.

***American States Water Company Agreement***

SCWA's agreement with American States Water Company (ASWC) specifies making available 5,000 AF/year of replacement water at their intake facilities on the Folsom South Canal. ASWC's need for additional replacement water will be determined annually in a meet-and-confer session with SCWA. Regardless of demonstrated need, ASWC's maximum allocation of replacement water supply in any year will not be greater than 15,200 acre-feet (less the 5,000 AF/year delivered to ASWC at the Folsom South Canal). Under the agreement, delivery of replacement water will be made at four predetermined locations. Zone 40's supply and conveyance system will be modified such that it can convey all or a portion of the replacement water to these agreed upon points of delivery. Upon completion of treatment and conveyance facilities for replacement water the agreement requires SCWA to acknowledge ASWC's right to use a portion of these facilities equal to the amount of replacement water allocated to ASWC.

***Cal-Am Agreement***

Currently, no separate replacement water supply agreement exists between SCWA and Cal-Am. However, it is the intent of SCWA to negotiate such an agreement with Cal-Am. During negotiations SCWA has been working cooperatively with the City of Sacramento to investigate ways to deliver POU surface water (or replacement water in dry years) to Cal-Am's service area that lies within the POU (this includes up to 5,000 AF/year of either POU or replacement water). This will allow groundwater currently being extracted in the POU area to be imported into areas affected by groundwater contamination.

***Memorandum of Agreement (MOA) for Management of Water and Environmental Resources Associated with the Lower Cosumnes River***

Under the terms of this agreement, SCWA will provide 5,000 AF/year of remediated groundwater or provide a contribution of a reasonable amount of capital towards the purchase of an alternative supply for the Cosumnes River Flow Augmentation Project. In any year that water is not required to fulfill the objectives of the Cosumnes River Augmentation Project SCWA reserves the right to use the 5,000 AF of water for other purposes. Remediated water will be conveyed down the Folsom South Canal for delivery to the Cosumnes River from October through December. The term of this agreement is for five years. No later than the fourth year those

participating in the agreement will initiate negotiations for a renewal of the agreement taking into account any additional program elements that may have been identified during the process of implementing the agreement.

***SMUD Dry Year Water Requirements***

SMUD's Water Forum Purveyor Specific Agreement contains a provision related to the transfer of SMUD 2 water which requires SCWA to provide up to 10,000 AF/year of groundwater to SMUD to maintain operations at their Rancho Seco facility. The amount of water required by SMUD is based on hydrologic year type and the amount of cut back they may experience on their remaining CVP contract. Delivery of this water will be through the Folsom South Canal.

Water to meet this demand can be taken from either the potable system or the raw water system. The decision of which option to use will depend on the capital and operational cost difference between the two choices. Intuitively, water taken from the potable system would have significant impacts on system water demands and design. Water taken from the raw water system (either surface water or groundwater) would have a minimal effect on the operation of the potable system and impacts could be reduced significantly.

SMUD's dry year demands are determined based on the frequency of dry years when there would be a call for water. Modeling studies for Freeport Regional Water Authority's (FRWA) Freeport diversion and pipeline project indicate that the frequency of SMUD demand is very low, occurring in only 20 percent of years, with the need for the full 10,000 AF/year occurring in only three percent of years. SCWA has assumed that the monthly delivery pattern of SMUD dry year demand water would follow a uniform distribution.

It is expected that SMUD's dry year demand's can be met through the unused portions of the SMUD CVP assignment (through 2030). Whether the water can be diverted directly into the Folsom South Canal from the American River or if it will have to be diverted at Freeport is unknown at this time. If the diversion occurs at Freeport, capacity in East Bay Municipal Utility District's (EBMUD) pipeline beyond the turnout for the Central WTP will be required if there is sufficient capacity in the pipeline. If these alternatives are unacceptable, water from the treated water system or groundwater will be needed to meet SMUD's dry year demands. As the time of this writing there may be a SMUD alternative to

taking Zone 40 water that will eliminate this demand from consideration.

***Water Code section 10631 continued…***

*(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:*

*(A) Single-family residential.*

*(B) Multifamily.*

*(C) Commercial.*

*(D) Industrial.*

*(E) Institutional and governmental.*

*(F) Landscape.*

*(G) Sales to other agencies.*

*(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.*

## 2.5 Water Use by Customer-type

*SCWA keeps records of the number of customers it serves by customer-type for billing purposes. A summary of that data is shown in **Table 2-8**. SCWA is currently implementing a program that is converting approximately 3000 residential flat-rate customers to metered per year. Since January 1, 2000, all SCWA customers with new homes have been charged at a metered rate. In addition, SCWA is implementing a federally mandated program to transition its customers to metered billing by 2014.*

*Water use by customer type is collected for billing purposes. However, because the billing cycles do not correspond with the calendar months, this data cannot be used directly in the determination of water use by customer type. As result, SCWA uses total production data reported by Zone 41 and then spreads the total water use over the estimated number of existing and future accounts. Future accounts are based on land use information for 2030 for each of the customer categories. The acreage is converted to number of accounts based on estimated factors using existing information. The water demand is based on a water duty factor for each acre of the given land use type. These production data are shown in **Table 2-8**. Water duty factors do vary slightly over time as a result of implementing "hardened" water conservation measures such as metering.*

**Table 2-8: Past, Current, and Projected Water Deliveries**

| | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2004 | metered | # of accounts | 771 | 17,793 | 1,495 | 745 | 405 | 81 | 581 | 131 | 22,002 | |
| | | Deliveries AF/Y | 1,009 | 10,142 | 1,987 | 1,701 | 4,256 | 1,404 | 2,276 | 590 | 23,367 | |
| | unmetered | # of accounts | 0 | 19,276 | 37 | 262 | 93 | 14 | 3 | 0 | 19,685 | |
| | | Deliveries AF/Y | 0 | 12,678 | 39 | 1,067 | 85 | 537 | 11 | 0 | 14,416 | 37,783 |
| 2010 | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
| | metered | # of accounts | 1,380 | 26,775 | 5,445 | 768 | 1,036 | 253 | 1,254 | 224 | 37,136 | |
| | | Deliveries AF/Y | 1,806 | 26,775 | 2,042 | 2,305 | 6,215 | 5,469 | 3,386 | 1,476 | 49,475 | |
| | unmetered | # of accounts | 0 | 9,638 | 19 | 131 | 47 | 7 | 2 | 0 | 9,842 | |
| | | Deliveries AF/Y | 0 | 9,638 | 7 | 393 | 279 | 2 | 4 | 0 | 10,323 | 59,798 |
| 2015 | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
| | metered | # of accounts | 1,888 | 46,440 | 6,444 | 1,031 | 1,301 | 336 | 1,666 | 336 | 59,442 | |
| | | Deliveries AF/Y | 2,470 | 46,440 | 2,416 | 3,092 | 7,805 | 7,266 | 4,499 | 2,214 | 76,203 | |
| | unmetered | # of accounts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | Deliveries AF/Y | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76,203 |
| 2020 | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
| | metered | # of accounts | 2,396 | 56,467 | 7,424 | 1,162 | 1,519 | 413 | 2,077 | 447 | 71,905 | |
| | | Deliveries AF/Y | 3,135 | 56,467 | 2,784 | 3,486 | 9,115 | 8,912 | 5,609 | 2,952 | 92,459 | |
| | unmetered | # of accounts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | Deliveries AF/Y | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92,459 |
| 2025 | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
| | metered | # of accounts | 2,904 | 66,494 | 8,404 | 1,293 | 1,738 | 489 | 2,488 | 559 | 84,369 | |
| | | Deliveries AF/Y | 3,799 | 66,494 | 3,151 | 3,880 | 10,426 | 10,557 | 6,718 | 3,691 | 108,716 | |
| | unmetered | # of accounts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | Deliveries AF/Y | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108,716 |
| 2030 | | Water Use Sectors | Rural Estates | Single family | Multi-family | Com-mercial | Indust-rial | Instit / gov | Dedicated Irrigation | Recycled Water | Sub-Total | Total Water Use |
| | metered | # of accounts | 3,412 | 76,521 | 9,384 | 1,425 | 1,956 | 565 | 2,899 | 671 | 96,832 | |
| | | Deliveries AF/Y | 4,463 | 76,521 | 3,519 | 4,274 | 11,736 | 12,203 | 7,827 | 4,429 | 124,972 | |
| | unmetered | # of accounts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | Deliveries AF/Y | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124,972 |

| Table 2-9: Sales to Other Agencies – (AF/Year) | | | | | | |
|---|---|---|---|---|---|---|
| **Water Distributed** | **2004** | **2010** | **2015** | **2020** | **2025** | **2030 /opt** |
| **Water Sold to EGWS** | 4,453 | 4,697 | 6,551 | 7,202 | 7,321 | 7,321 |
| **Cal – Am (Rio del Oro)** | 2,500 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| **American States - Westborough** | 2,500 | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| **American States – Replacement water** | 5,000 | 10,000 | 10,200 | 10,200 | 10,200 | 10,200 |
| **Total** | 16,458 | 26,707 | 28,766 | 29,422 | 29,546 | 29,551 |

| Table 2-10: Additional Water Uses and Losses - (AF/Year) | | | | | | |
|---|---|---|---|---|---|---|
| **Water Use** | **2005** | **2010** | **2015** | **2020** | **2025** | **2030 /opt** |
| **Saline barriers** | | | | | | |
| **Groundwater recharge** | | | | | | |
| **Conjunctive use** | | | | | | |
| **raw water** | | | | | | |
| **recycled** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **other (define)** | | | | | | |
| **Unaccounted-for system losses (7.5 percent of total supply)** | 2,765 | 3,789 | 4,814 | 5,839 | 6,863 | 7,888 |
| **Total** | 7,165 | 8,189 | 9,214 | 10,239 | 11,263 | 12,288 |

| Table 2-11: Total Water Use – (AF/Year ) | | | | | | |
|---|---|---|---|---|---|---|
| **Water Use** | **2005** | **2010** | **2015** | **2020** | **2025** | **2030 /opt** |
| **Total of Tables 2-8, 2-9, 2-10** | 60,365 | 84,942 | 120,915 | 136,520 | 151,592 | 166,546 |

***Water Code section 10631 continued…***

*(f) Provide a description of the supplier's water demand management measures…*

*(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, that offer lower incremental costs than expanded or additional water supplies….*

*(j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that 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).*

## *2.6 Water Conservation*

### 2.6.1 Demand Management Measures /Best Management Practices

As a signatory to the WFA and as a Reclamation CVP water contractor, SCWA is committed to implementing a water conservation program that includes 16 Water Conservation BMPs as defined in the Sacramento County Water Forum Water Conservation Plan. SCWA is also a member of the California Urban Water Conservation Council (CUWCC). Included in **Appendix E** are the 2001-2002 and 2003-2004 Coverage Reports submitted to the CUWCC by SCWA's Water Conservation Coordinator. These coverage reports summarize information on the progress of implementing SCWA's BMPs.

**Retail Areas are required to report on:**

- BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers
- BMP 02: Residential Plumbing Retrofit
- BMP 03: System Water Audits, Leak Detection and Repair
- BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing
- BMP 05: Large Landscape Conservation Programs and Incentives
- BMP 06: High-Efficiency Washing Machine Rebate Programs
- BMP 07: Public Information Programs
- BMP 08: School Education Programs
- BMP 09: Conservation Programs for CII Accounts
- BMP 11: Conservation Pricing
- BMP 12: Conservation Coordinator
- BMP 13: Water Waste Prohibition
- BMP 14: Residential ULFT Replacement Programs

**Wholesale Areas are required to report on:**

- BMP 03: System Water Audits, Leak Detection and Repair
- BMP 07: Public Information Programs
- BMP 08: School Education Programs
- BMP 10: Wholesale Agency Assistance Programs
- BMP 11: Conservation Pricing
- BMP 12: Conservation Coordinator

***Water Code section 10631 continued…***

*(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 (1) 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.*

## *2.7 Water Supply Projects and Programs*

The following describes the capital facility components required for the treatment, storage, and conveyance of the water supply components identified above. As of late 2004, Zone 41 facilities include a transmission and distribution system, 65 groundwater production facilities, and 6 mgd (expandable to 11 mgd) of non-dedicated surface water capacity from the City's SRWTP. Additional groundwater, surface water, and recycled water facilities are considered vital components of the water supply reliability of Zone 41. Groundwater and surface water facilities are discussed in the following sections. Planned facilities are summarized in **Table 2-12**, which includes facility capacities and timing of construction. Recycled water facilities are discussed in **Section 4 – Recycled Water Plan**.

### 2.7.1 Groundwater Facility Component

Capital facilities necessary to provide groundwater production capacity include wells (including raw water piping from the well to the treatment plant), treatment, storage (storage and pumping), and conveyance to the distribution system. Most groundwater treatment facilities will have a maximum day input capacity of approximately 13 mgd (i.e., six wells with a 1,500 gpm capacity). Treatment plants will be constructed for iron, manganese, and possible arsenic removal (See **Section 5.1.1** for more information on arsenic removal requirements in Zone 41).

Groundwater recharge ("direct recharge") may be considered in the future as a way to enhance SCWA's conjunctive use program within the Central Basin. Direct recharge could consist of injection wells, spreading basins within the Cosumnes River floodplain, or direct discharge into the Cosumnes River to recharge the aquifers underlying the Central Basin. Water could potentially be obtained from either "Appropriative" or "Other" surface water sources, depending on availability. Treatment of surface water and approval by the RWQCB would be required prior to proposing injection of treated water into the aquifer. On-going testing of direct recharge through injection wells is being completed in the City of Roseville area which may set the standards for injection recharge programs in Sacramento County.

### 2.7.2 Surface Water Facility Component

Surface water facilities for Zone 40 consist of FRWA (a Joint Powers Authority consisting of SCWA and East Bay Municipal Utility District [EBMUD]) constructing a diversion structure on the Sacramento River near the community of Freeport and a raw water conveyance pipeline from the diversion structure to the central portion of Zone 40 (EBMUD's portion of the pipeline continues on to the Folsom South Canal). SCWA will construct a 100 mgd (ultimate capacity) surface water treatment facility, in the central portion of Zone 40 (called the Central WTP), and appurtenant treated water conveyance pipelines. Another component includes the existing 6 mgd (expandable to 11 mgd) of non-dedicated capacity at the City's SRWTP (the Wheeling Agreement with the City provides for conversion of non-dedicated capacity to dedicated capacity) and 30 mgd of wholesale capacity at the City's Florin Reservoir for the Florin-Vineyard Community Plan and North Vineyard Station Specific Plan area that lie within the City of Sacramento's American River POU.

For Zone 50, the Agreement between the City of Sacramento, the County of Sacramento, and the Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park calls for the wholesaling of up to 9.28 million gallons per day of City supplied water to SCWA for Zone 50. Increments of surface water capacity will be purchased from the City over time in accordance with the agreement and the planned build-up schedule of water demands in the Zone 50 WSMP. **Table 2-12** summarizes only the internal infrastructure to Zone 50 and does not include any capital improvements within the City. These improvements are simply funded through the agreement and are not uniquely identified other than the actual pipeline connecting Zone 50 with the City's distribution and transmission system.

| Table 2-12: Future Water Supply Projects | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Phase 1 | | Phase 2 | |
| Project | | Capacity (MGD) | Capacity (AF/Year) | Year | % | Year | % |
| Zone 40 | Anatolia GWTP | 13 | 14,560 | 2005 | 50% | 2008 | 100% |
| | East Elk Grove GWTP | 13 | 14,560 | 2005 | 50% | 2008 | 50% |
| | Wildhawk GWTP | 8 | 11,200 | 2006 | 100% | | |
| | Franklin GWTP | 7 | 7,840 | 2006 | 50% | 2008 | 100% |
| | Big Horn GWTP | 13 | 14,560 | 2006 | 50% | 2008 | 100% |
| | Sunrise Douglas (Suncreek) GWTP | 4 | 4,480 | 2010 | 100% | | |
| | Central WTP | 100 | 112,000 | 2010 | 50% | 2019 | 100% |
| | Laguna Ridge (Whitelock) GWTP | 13 | 14,560 | 2010 | 50% | 2012 | 100% |
| | City of Sacramento (POU) North Vineyard – Storage and Booster Pump | 20 | 22,400 | 2006 | 50% | 2011 | 100% |
| | Bond GWTP | 6.5 | 7,280 | 2015 | 100% | | |
| | Sheldon Road Storage | 0.5 | 560 | 2020 | 100% | | |
| | Poppy Ridge GWTP | 13 | 14,560 | 2005 | 50% | 2006 | 50% |
| Zone 50 Infrastructure | | 10 | 5,200 | 2006 | 20% | 2009 | 80% |
| Other Zone 41 Service Areas[1] | | | | | | | |

1. Other unidentified improvements are likely to occur in the smaller Zone 41 service areas as needs arise over time either due to limited growth or replacement requirements.

***Water Code section 10631 continued…***

*(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water -year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).*

### 2.7.3 Wholesale Water

**Tables 2-13** to **Table 2-16** summarize Zone 41's wholesale purchase supply needs. Recycled water is not included in this evaluation (see **Section 4** for Recycled Water Usage and wholesale purchase)

**Arden-Cordova System (ASWC)**

In the early 1990's an intertie was constructed between ASWC and SCWA as an emergency backup connection (water can be supplied to either agency in the event of an emergency) for the Zone 41 Sunrise Corridor System and the ASWC system. Later on an in-line booster pump was installed to increase pressures going into the Sunrise Corridor system in order to provide peaking capacity within the system because of a limitation of lack of storage. This storage has yet to be built.

In 1997, perchlorate was detected in the Sunrise Corridor system wells and they were removed from service. With this loss of capacity the ASWC intertie has become a critical source of water until new supplies can be are developed and brought on line. A provision of the agreement stipulates that the connection can be shut off at any time if supplies or pressures within ASWC's system are insufficient to meet water demands. To date this has not occurred. The total capacity of this supply is 1,000 gpm.

SCWA assumes that as new capacity comes on-line within the NSA the intertie between the two systems will again be an emergency connection. If ASWC were to lose groundwater capacity in the future as a result of contamination from Aerojet, SCWA is obligated to replace this capacity in accordance with the Water Supply Delivery Agreement between SCWA and ASWC.

**Sacramento Suburban Water District**

The Zone 41Arden Park Water System has been receiving peaking water from Sacramento Suburban Water District while a well in the Zone 41 system is being replaced. It is expected that this well will be in operation in 2006 and the wholesale purchase of water will no longer be needed.

**City of Sacramento**

In the future, the City will be wholesaling water to Zone 41 at the City's Florin Reservoir for the Florin-Vineyard Community Plan and North Vineyard Station Specific Plan area that lie within the City of Sacramento's American River POU. The capacity is assumed to be 30 mgd of maximum day capacity and 9,300 AF/year.

**Fruitridge Vista Water Company**

The Zone 41 Service Area of Southwest Tract purchases its water from Fruitridge Vista Water Company. This is a small service area and has an annual demand of 59 AF/year.

**Table 2-13: Agency Demand Projections Provided to Wholesale Suppliers – (AF/Year)**

| Wholesaler | 2010 | 2015 | 2020 | 2025 | 2030/opt |
|---|---|---|---|---|---|
| ASWC | 0 | 0 | 0 | 0 | 0 |
| Sac Suburban | 0 | 0 | 0 | 0 | 0 |
| City of Sacramento | 0 | 9,300 | 9,300 | 9,300 | 9,300 |
| Fruitridge Vista Water Company | 59 | 59 | 59 | 59 | 59 |

**Table 2-14: Existing and Planned Sources of Wholesale Water Available to SCWA – (AF/Year)**

| Wholesaler sources | 2010 | 2015 | 2020 | 2025 | 2030/opt |
|---|---|---|---|---|---|
| ASWC | 0 | 0 | 0 | 0 | 0 |
| Sac Suburban | 0 | 0 | 0 | 0 | 0 |
| City of Sacramento | 0 | 9,300 | 9,300 | 9,300 | 9,300 |
| Fruitridge Vista Water Company | 59 | 59 | 59 | 59 | 59 |

| Table 2-15: Wholesale Supply Reliability - % of normal supply | | | | | |
|---|---|---|---|---|---|
| | | Multiple Dry Water Years | | | |
| Wholesaler | Single Dry | Year 1 | Year 2 | Year 3 | Year 4 |
| ASWC | n.a. | n.a. | n.a. | n.a. | n.a. |
| Sac Suburban | n.a. | n.a. | n.a. | n.a. | n.a. |
| City of Sacramento | 100% | 100% | 100% | 100% | 100% |
| Fruitridge Vista Water Company | 100% | 100% | 100% | 100% | 100% |

| Table 2-16: Factors Resulting in Inconsistency of Wholesaler's Supply | | | | |
|---|---|---|---|---|
| Name of supply | Legal | Environmental | Water Quality | Climatic |
| No inconsistencies exist | | | | |

***Water Code section 10632.***

*The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:*

# 3. Water Shortage Contingency Plan

## *3.1 Stages of Action*

SCWA has established a water shortage contingency plan identifying various stages of supply shortages which trigger corresponding water conservation actions. These stages and their corresponding actions are summarized in **Table 3-1**. In Zone 40, SCWA uses groundwater to supplement its surface water supplies. This means that surface water shortages would impact SCWA less than agencies that fully rely on surface water. In a dry year for instance, SCWA would merely pump more groundwater to meet its customer's demands. However, if water shortages were to continue the groundwater basin could be over-drafted and other alternatives would have to be investigated. These water supply reliability issues are discussed in Section 5.

**Table 3-1: Water Supply Shortage Stages**

| Stage No. | Actions taken by SCWA | % of Supply Shortage |
|---|---|---|
| Stage 1 | Water rationing | 15% |
| Stage 2 | No new water connections to the system will be permitted | 15-25% |
| Stage 3 | Landscape irrigation shall be limited to once per week | 25-35% |
| Stage 4 | Landscape irrigation will not be permitted | 35-50% and above |
| Final Stage | Mandatory prohibitions on water use | % |

***Water Code section 10632 continued….***

(a) *Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.*

*(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.*

## *3.2 Estimate of Minimum Supply for the Next Three Years*

Currently, SCWA relies primarily on groundwater for its water supply. If the next three years (2006-2008) were equivalent to the driest three year sequence in history, SCWA would be able to use 100 percent groundwater to meet its demands. This is assuming that all surface water from the City of Sacramento and ASWC would be unavailable. Per the WFA, (as described in **Section 1.3.3**) each groundwater basin has a long-term annual average sustainable yield and it is possible to exceed these sustainable yield values during dry hydrologic periods as long as the long-term annual average groundwater use in the basin is below the sustainable yield. The maximum long-term annual average use of groundwater by Zone 40 is 40,900 acre-feet per year. Overall water demands within Zone 40 will not exceed this amount within the next three years, regardless if 100 percent groundwater were used. The three-year estimated water supply for Zone 41 is shown in **Table 3-2**. The normal year values in **Table 3-2** represent 2030 conditions of water supply from each source.

| Table 3-2: Three-Year Estimated Minimum Water Supply – (AF/Year) | | | | |
|---|---|---|---|---|
| **Source** | **Normal** | **2006** | **2007** | **2008** |
| **Water purchased from:** | | | | |
| Zone 40 CVP Surface Water | 45,000 | 7,299 | 6,154 | 6,971 |
| Zone 40 Appropriate Surface Water | 70,000 | 0 | 0 | 0 |
| Zone 40 Groundwater | 40,900 | 16,707 | 19,924 | 23,141 |
| Zone 40 Recycled Water | 4,400 | 2,880 | 3,260 | 3,640 |
| Zone 50 Surface Water/Groundwater | 5195 | 197 | 364 | 494 |
| Northgate Groundwater | 1,300 | 1,235 | 1,105 | 1,105 |
| Arden Park Groundwater | 4,400 | 4,180 | 3,740 | 3,740 |
| Walnut Grove Groundwater | 76 | 72 | 61 | 61 |
| Hood Groundwater | 100 | 95 | 100 | 95 |
| Southwest Tract Groundwater (See Note 1) | 59 | 48 | 50 | 48 |
| Delta Estates HOA (potential service area) | 50 | 56 | 59 | 56 |
| Locke (potential service area) | 100 | 95 | 100 | 95 |
| **Total** | 171,580 | 32,864 | 34,917 | 39,436 |

*Note 1: Reliability in dry years will be dependent on the availability of surface water to City of Sacramento from the Sacramento River beyond 2010 to make up for possible curtailments in water from the American River*

## *3.3 Catastrophic Supply Interruption Plan*

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***Water Code section 10632 continued….***

*(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster*

### 3.3.1 Catastrophic Preparedness

SCWA and the County have planned for the possibility of a catastrophe. The following is a summary of some of the plans that have been developed.

Multi-Hazard Mitigation Plan

In December 2000, Sacramento County published its *Multi-Hazard Mitigation Plan* (MHMP) to meet the requirements of the Disaster Mitigation Act of 2000 (PL 106-3900). The MHMP also functions as the CRS Floodplain Management Plan for the County. The MHMP identifies and assesses the risks from potential natural hazards in Sacramento County, reviews the County's current

capabilities to reduce the impacts from hazards, and includes recommended actions to reduce vulnerability to potential disasters. The natural hazards identified and investigated in the MHMP include:

- Severe weather
  - Heavy rains/storms
  - Tornadoes
  - Fog
- Flood
- Dam failure
- Earthquakes
- Wildfires
- Drought
- Natural health hazards
  - West Nile Virus
- Landslides and
- Volcanoes

The multi-jurisdictional plan includes the County, the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, as well as 69 other special districts.

Other Countywide Emergency Management programs

**Sacramento County Multi-Hazard Disaster Plan (July, 1997)**
This plan provides for the response to extraordinary events associated with natural disasters and technological incidents. The plan outlines roles and responsibilities, and is designed to be part of the California Standardized Emergency Management System.

**Dam Emergency Preparedness Plans**
The county has copies of the emergency plans and inundation maps for Folsom Dam that were prepared by the U.S. Bureau of Reclamation.

**County Sandbag Locations**
The county has an inventory of sandbag stockpiles and a map showing where these resources are located. These sites are posted on the web at *www.floodready.org*. Sandbag locations are stocked and opened when there is a recognized threat of impending high intensity storms.

**Sacramento County Flood ALERT system**
ALERT, developed by the National Weather Service (NWS), stands for Automated Local Evaluation in Real Time and signals the County Department of Water Resources of possible flooding. It provides continuous and automatic reports from river levels and rainfall gauges. These monitoring stations provide data to determine when to initiate evacuation procedures.

**Sacramento County Website**
Emergency information can be found on the County's website at (*www.saccodwr.org* or *www.floodready.org*). Also included are links to several agencies serving the County to contact if power goes out, flood occurs, etc. (SMUD, PG&E, fire and police department links, sand bag locations, etc.).

### 3.3.2 Catastrophic Supply Interruption

SCWA has various procedures and contingencies prepared in order to be able to continue to deliver water to its customers after a catastrophe. These include approximately 1 million gallons of water storage, backup power generators at every groundwater pump station and treatment plant, and the ability to accommodate portable electric generators. SCWA is also currently developing a planning hydraulic operations model and eventually a calibration model for its entire distribution system. This calibration model would allow operators to test various scenarios to adjust operations based on a catastrophic supply interruption, such as a ruptured transmission line, and to maximize all available resources. SCWA would also dedicate all the necessary maintenance staff to repair and isolate major distribution system failures. SCWA would also notify the public regarding water supply shortages through mailers, newspaper notices, television announcements, and radio announcements.

***Water Code section 10632 continued….***

*(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*

*(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*

*(f) Penalties or charges for excessive use, where applicable.*

## *3.4 Prohibitions, Penalties, and Consumption Reduction Methods*

During a water shortage from a catastrophic event, SCWA can send out an advisory notice to its customers that imposes restrictions on water use. This notice advises the customers that water should only be used for drinking, cooking, making ice, toilet flushing, showering, bathing, tooth brushing, and other sanitary purposes.

Unacceptable uses include outside landscape irrigation; filling or refilling swimming pools or hot tubs; and washing cars, sidewalks, driveways, or gutters except to abate an immediate sanitary hazard. The notice also gives locations where potable water is available. The advisory notice also warns that failure to follow the restrictions could result in civil penalties. A sample "Water Shortage Advisory" and "Cancellation of Water Shortage Advisory" is included in **Appendix F**.

Other the actions that SCWA can take during water shortages are summarized in **Tables 3-3, 3-4 and 3-5**. These actions include more voluntary restrictions, water rationing, and fines for non-compliance.

| Table 3-3: Mandatory Prohibitions | |
|---|---|
| **Examples of Prohibitions** | **Stage When Prohibition Becomes Mandatory** |
| **Using potable water for street washing** | **Stage 5** |
| **Washing cars** | **Stage 5** |
| **Watering lawns/landscapes** | **Stage 5** |
| **Non-permanent agriculture** | **Stage 5** |
| **Uncorrected plumbing leaks** | **Stage 5** |
| **Gutter flooding** | **Stage 5** |
| **Other** Restaurants shall serve water to customers only upon specific request | **Stage 5** |
| **Other** All swimming pools, ponds, and fountains shall be equipped with recirculating pumps. | **Stage 1** |

| Table 3-4: Consumption Reduction Methods | |
|---|---|
| **Consumption Reduction Methods** | **Stage When Method Takes Effect** |
| **Demand reduction program** | **1** |
| **Reduce pressure in water lines** | |
| **Flow restriction** | |
| **Restrict building permits** | **2** |
| **Restrict for only priority uses** | **5** |
| **Use prohibitions** | **1** |
| **Water Shortage pricing** | |
| **Per capita allotment by customer type** | |
| **Plumbing fixture replacement** | |
| **Voluntary rationing** | **1** |
| **Mandatory rationing** | **5** |
| **Incentives to reduce water consumption** | **1** |
| **Education Program** | **1** |
| **Percentage reduction by customer type** | **4** |
| **Other** | |

| Table 3-5: Penalties and Charges | |
|---|---|
| **Penalties or Charges** | **Stage When Penalty Takes Effect** |
| **Penalties for not reducing consumption** | Repeated violations call for meter installation or placement of flow restrictors |
| **Charges for excess use** | Repeated violations call for meter installation or placement of flow restrictors |
| **Flat fine** | |
| **Charge per unit over allotment** | |
| **Flow restriction** | |
| **Termination of service** | |
| **Other** | |

***Water Code section 10632 continued….***

*(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*

## *3.5 Analysis of Revenue Impacts of Reduced Sales During Shortages*

Approximately half (see **Table 3-6**) of the connections within Zone 41 are metered. Therefore, if there were a catastrophe that would significantly reduce water demand, either voluntarily or involuntarily, SCWA would see a loss in revenue. As shown in **Table 3-6**, revenues decreases as the reduction in demand increases. Costs also decrease, but they decrease at a slower rate than revenues because SCWA continues to incur fixed costs during a water shortage, and if there were a catastrophe, SCWA would devote more labor and resources to repair any significant damage. Therefore, if costs increase at a faster rate than revenue, this would greatly decrease cash flow to SCWA. SCWA may need to consider expanding its cash reserves, temporarily increasing flat rate water rates, or seeking funding assistance from the state or federal government through loans and/or grants if such an occurrence happens.

| Table 3-6: Changes in Revenue and Cost due to Demand Reductions | | | |
|---|---|---|---|
| % Reduction in Water Demand | % Change in Revenue | % Change in Cost | % Profit (Revenue - Cost) |
| 15% | -12% | -4% | -5% |
| 25% | -18% | -6% | -11% |
| 35% | -25% | -8% | -17% |
| 50% | -35% | -12% | -29% |

***Water Code section 10632 continued….***

*(h) A draft water shortage contingency resolution or ordinance.*
*(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

## 3.6 Draft Ordinance and Use Monitoring Procedure

### 3.6.1 Draft Ordinance

According the Section 350 of the Water Code, the SCWA Board of Directors must declare a water shortage emergency within Zone 41 if there is insufficient water for human consumption, sanitation, and fire protection. The emergency declaration would prompt Zone 41 to implement its Water Shortage Contingency Plan, as described in the preceding sections. Except during a catastrophic emergency (e.g., failure of a dam, pump, pipeline, or conduit), an emergency declaration may only be made after a public hearing is held so that SCWA's customers would have the opportunity to protest the declaration. Appendix F includes also includes a Water Shortage Contingency Plan that was enacted by SCWA in 1998 for its Sunrise service area in response to groundwater wells that were impacted by groundwater contamination.

### 3.6.2 Use Monitoring Procedures

**Demand:**

SCWA can monitor the individual water use of its metered customers. SCWA bills its customer's bi-monthly. These bills show the amount of water used by the customer during the previous billing period as well as previous month's usage. These billing reports can be generated more frequently to verify if a customer has reduced their water usage during a water shortage period or after the customer has received a "Water Shortage Advisory."

Currently, about half of Zone 41's customers are metered, but SCWA is currently implementing a program that will install meters

on all existing services. All new connections are required to have meters. Upon completion of this program, Zone 41 will have the ability to fully monitor their customer's water use.

**Production:**

SCWA keeps records of how much groundwater they produce at each of their groundwater wells and how much surface water they are serving. This production data is typically summarized monthly by Zone 41, but can be generated more frequently if there is a water shortage and Zone 41 needs to target specific areas for conservation.

| Table 3-7: Water Use Monitoring Mechanisms |
|---|
| **Mechanisms for determining actual reductions of water use** |
| **Use normalized or average water use baseline to determine reductions** |
| **More frequent review of production** |
| **More frequent meter reading at customer location** |
| **More frequent leak detection and repair** |
| **More frequent meter checking and repair** |
| **System audit** |
| **Automated sensors and telemetry** |
| **Monitor utility actions** |
| **Penalties for customers** |

***Water Code section 10633.***

*The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:* ***(See Section 4.2 and Section 4.3)***

# 4. Recycled Water Plan

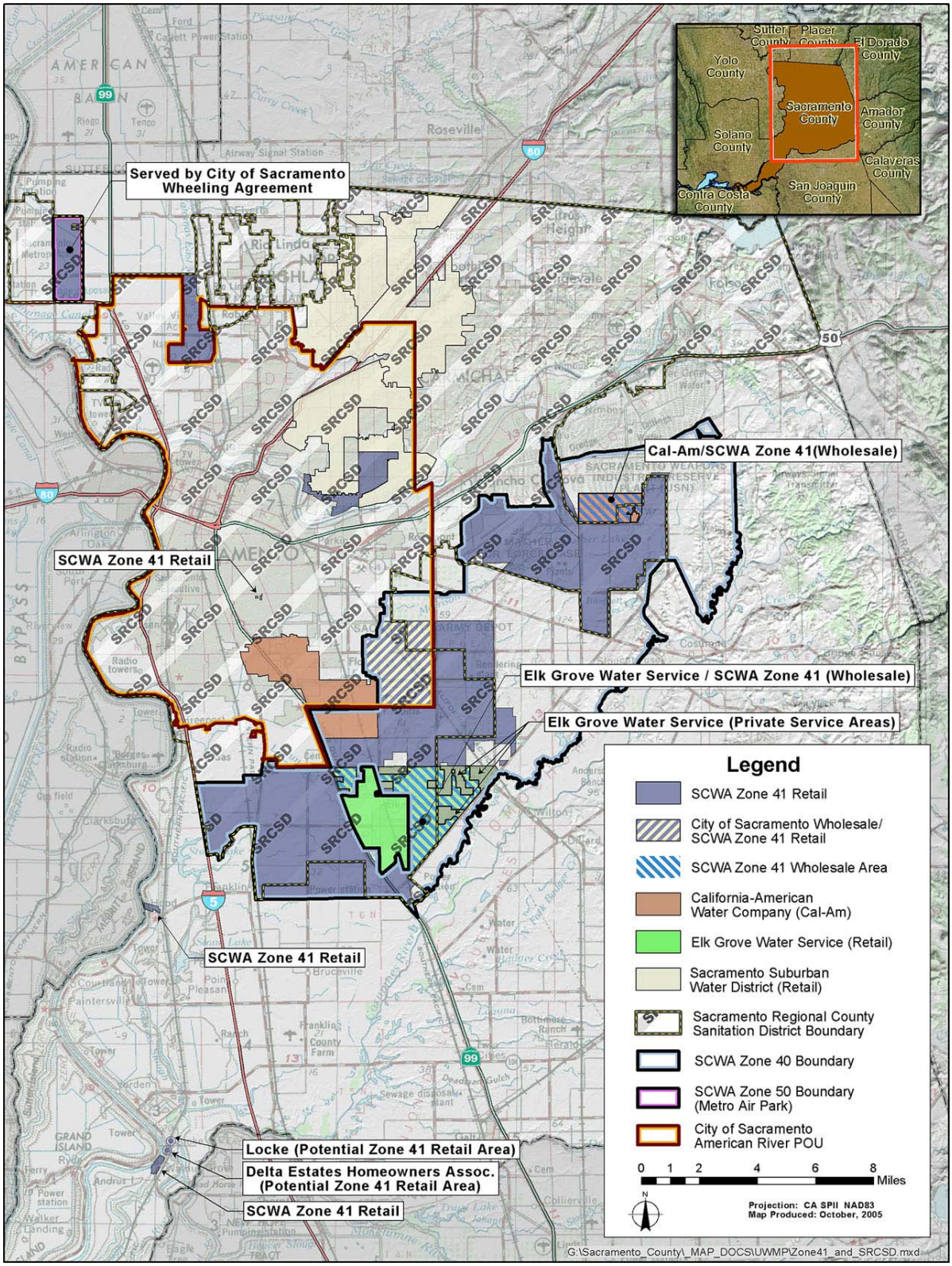
## 4.1 Sacramento Regional County Sanitation District Recycled Water Program

Sacramento Regional County Sanitation District (SRCSD) is responsible for the collection, treatment, disposal and reuse (recycled water) of wastewater throughout most of the urbanized areas of Sacramento County, including the majority of service areas retailed water by SCWA. SRCSD's boundaries are shown in relation to the SCWA's boundary in **Map 4-1**.

Through an agreement between SCWA and SRCSD, the SRCSD has successfully implemented a five (5) million gallon per day (MGD) Water Recycling Program. This program provides recycled water for SRCSD on-site uses and for large commercial irrigation customers within Zone 40/Zone 41 (e.g., commercial, industrial, right-of-way landscaping, schools, and parks). Recycled water is a desirable source of water for outdoor landscape irrigation and other non-potable uses because of its high reliability and its independence of hydrologic conditions in any given year. By increasing the use of recycled water SRCSD may be able to reduce the amount of treated wastewater discharged to the river which may become a more cost effective solution for the SRCSD's 1.1 million ratepayers as wastewater regulations require ever higher treatment standards (and costs) for discharged effluent. A large portion of Zone 41 customers are within SRCSD's service area.

The most commonly used recycled water is defined as wastewater that has been treated to tertiary standards that meet Title 22 of the California Code of Regulations. Recycled water treated to this level can be used for all outdoor irrigation demands in a community, including; parks, schools, street medians, residential front and backyard landscaping, public open space, as well as industrial uses such as cooling water. In addition, recycled water is commonly used for environmental purposes such as wetlands and habitat restoration.

**Map 4-1: SCWA Zone 41 Service Area vs. SRCSD Service Area**



| Table 4-1: Participating Agencies | |
|---|---|
| **Participating agencies** | **Role in Plan Development** |
| **Water agencies** | Sacramento County Water Agency |
| **Wastewater agencies** | Sacramento Regional County Sanitation District |
| **Groundwater agencies** | Sacramento Groundwater Authority |
| **Planning Agencies** | |
| **Other** | |

***Water Code section 10633 continued….***

*(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*

*(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*

*(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*

*(d) A description and quantification of the potential uses of recycled water , including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.*

## *4.2 Wastewater Quantity and Quality*

SRCSD owns and is responsible for the operation of the regional wastewater treatment plant. The Sacramento County Sanitation District 1 (CSD-1) owns and is responsible for the operation of four smaller wastewater plants in Sacramento County. Descriptions of treatment systems follow.

### 4.2.1 SRCSD Regional Wastewater Treatment Plant (Regional Plant)

#### 4.2.1.1 Collection System Description

The service area covered by the SRCSD collection system includes the Sacramento Metropolitan area, including the cities of Sacramento, Citrus Heights, Elk Grove, Rancho Cordova, and Folsom, and portions of unincorporated Sacramento County. The Cities of Folsom and Sacramento are primarily responsible for the collection system operation and maintenance within their respective boundaries. CSD-1 has some responsibilities in the City of Sacramento and is responsible for the operation and maintenance of all collection sewers not including the interceptor sewers. The collection system consists of approximately 3,000 miles of collection and trunk sanitary sewer pipe and 90 miles of sanitary sewer interceptors. Trunk sewers are typically defined as sewers capable of carrying 1 MGD to 10 MGD and interceptor sewers are capable of carrying 10 MGD or greater and are typically the primary sewers connected to the Regional Plant.

#### 4.2.1.2 Treatment System Description

The Regional Plant provides secondary level wastewater treatment consisting of mechanical bar screens, aerated grit removal, primary sedimentation, pure oxygen activated sludge aeration, secondary clarification, chlorine disinfection and dechlorination just prior to discharging to the Sacramento River through a multi-port diffuser and outfall. Solids are first processed using dissolved air floatation thickeners or gravity belt thickeners, then sent to sludge digesters. Digested solids are pumped to blending digesters, then solids storage basins, and finally directed into on-site dedicated land disposal sites. Discharges to the Sacramento River must be diverted to emergency storage basins when a river to effluent dilution ratio of 14:1 cannot be maintained. Emergency storage basins are also occasionally used to store raw wastewater, or primary or secondary effluent.

#### 4.2.1.3 Other minor Wastewater Treatment Plants

CSD-1 is also responsible for the operation and maintenance of four other smaller wastewater facilities within Sacramento County:

Walnut Grove WWTP (Average Annual Daily Flow = 0.194 MGD)

Courtland WWTP (Average Annual Daily Flow = 0.046 MGD)

Sacramento International Airport WWTP (Average Annual Daily Flow = 0.160 MGD)

Boy's Ranch Treatment Plant (Average Annual Daily Flow = 0.008 MGD)

### 4.2.2 SRCSD Wastewater Flow Projections 2000 - 2030

SRCSD only treats wastewater to Title 22 or tertiary levels at their 5 MGD recycled water treatment plant. Note that the Regional Plant effluent discharge flow projections provided below are for the entire SRCSD service area and do not differentiate where the wastewater contributions originated from within the SRCSD service area.

Wastewater flow and load projections for the 2020 Sacramento Regional Wastewater Treatment Plant Master Plan were developed using per capita flow and load values and SACOG population projections. Wastewater flow projections through the year 2020 are listed below and shown in **Table 4-2** and **Table 4-3**:

**Table 4-2: Wastewater Collection and Treatment - AF/Year**

| | 2000 | 2005 | 2010 | 2015 | 2020 |
|---|---|---|---|---|---|
| **Wastewater collected & treated in service area (ADWF)[1]** | 189,317 | 194,918 | 219,563 | 235,246 | 244,208 |

*Notes:*

[1] - Average dry weather flow, as defined by the 3 consecutive, lowest flow months

**Table 4-3: Disposal of Wastewater (non-recycled) - AF/Year**

| Method of disposal | Treatment Level | 2005 | 2010 | 2015 | 2020 |
|---|---|---|---|---|---|
| Discharge to Sacramento River | Tertiary | 190,518 | 215,163 | 230,846 | 239,808 |

## *4.3 Current, Potential, and Projected Use*

**Table 4-4** provides a breakdown in the use of recycled water that exists in 2004. Future uses are provided in sections below.

**Table 4-4: Actual Recycled Water Uses - AF/Year**

| User type | Treatment Level | 2004 AF/Y |
|---|---|---|
| **Agriculture** | | |
| **Landscape** | Tertiary | **803** |
| **Wildlife Habitat** | | |
| **Wetlands** | | |
| **Industrial** | | |
| **Groundwater Recharge** | | |
| **Total** | | **803** |

### 4.3.1 SRCSD Water Recycling Program – Phase I

SRCSD has designed and constructed a 5 MGD recycled water treatment plant located at their Regional Plant site. The recycled water program began delivering recycled water in April 2003 to areas within SCWA's Zone 41 Laguna West, Lakeside, and Laguna Stonelake communities near Elk Grove for landscape irrigation, and for on-site needs for at the Regional Plant. Off-site recycled water

is delivered in partnership with the SCWA Zone 41. SRCSD provides recycled water and Zone 41 retails the recycled water to their customers. This is called Phase I of the SRCSD Water Recycling Program.

As of September 2005, the program has 40 user sites which include parks, schoolyards, commercial landscaping and roadway medians. There are more user sites planned for connection in 2006. Phase I recycled water usage has reached a peak operation of 3.0 MGD and an average daily water recycling usage in the range of 1.0 – 1.5 MGD. All operations are conducted in accordance with the RWQCB and Department of Health Services (DHS) recycled water standards and SRCSD's Master Reclamation Permit (WDR #97-146).

### 4.3.2 SRCSD Water Recycling Program – Phase II

The Water Recycling Program on the Regional Plant site was designed and constructed to be readily expandable to 10 MGD in accordance with SRCSD's Master Reclamation Permit (WDR #97-146). A planned Water Recycling Facility plant expansion from 5 MGD to 10 MGD could serve new areas of the growing Elk Grove/Laguna Community (East Franklin, and Laguna Ridge developments), and public open space and golf course areas within the City of Sacramento. Similar to Phase I, SRCSD will work in partnership with SCWA to serve these Zone 41 areas. The expanded water recycling facility and new water recycling service areas will be called Phase II of the SRCSD Water Recycling Program. Phase II construction will be timed with the need for the higher capacity and is currently expected to be in service by 2008-2010. Insufficient recycled water demand in the region surrounding the Regional Plant site may delay construction of Phase II to some later date. Other components of the SRCSD Water Recycling Master Plan may be implemented in other portions of the county as described in **Section 4.3.3**.

### 4.3.3 SRCSD Water Recycling Master Plan – Planned Growth to 2030

To plan for water recycling projects beyond 2010, SRCSD is developing a Water Recycling Master Plan (WRMP) to plan for water recycling program growth through 2030. The overall project objective is to increase water recycling usage in the Sacramento region during peak irrigation months to a 30 MGD to 40 MGD level. Water recycling on this scale will allow SRCSD to better

***Water Code section 10633 continued….***

*(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

*(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.*

*(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.*

manage its effluent discharged to the Sacramento River and could help Sacramento Area water purveyors improve their water supply availability and reliability in terms of irrigation and industrial water supply. The WRMP effort will include significant outreach to stakeholders that could be associated with SRCSD's future water recycling plans. Stakeholders to be contacted during the WRMP are expected to include, among others; Sacramento Area water purveyors and users, land use planning authorities, land development leaders, and environmental interests. The WRMP will culminate in the development of a SRCSD Water Recycling Master Plan document that is expected to contain numerous water recycling project alternatives that will be evaluated for future SRCSD implementation. This WRMP document is expected to be completed in 2006.

### 4.3.4 Impediments to Recycled Water Implementation

It is recognized that areas with existing reliable surface water rights are perhaps not as likely to make use of recycled water over the planning horizon of the WRMP document. In addition, installation of a recycled water distribution system as a "retrofit", or installation of the recycled water distribution system after development entitlements are granted or where infrastructure is in place, is likely to be economically infeasible. Areas that are currently being served non-potable supplies from another source such as raw surface water or remediated groundwater are also not good candidates for recycled water implementation.

### 4.3.5 Economic Incentives to Develop Recycled Water Supplies

Since much of the new growth taking place in Sacramento County is in SCWA's Zone 41, the chances of an expanded recycled water program within the Zone 41 service area is very likely. The economic question of obtaining additional surface water supplies or making best use of recycled water supplies will be one of many factors in determining which areas are likely to move forward with recycled water. Other factors include avoided cost of wastewater treatment, environmental benefits, long-term sustainability of regional water supplies, as well as other societal and long-term benefits.

In areas where groundwater supplies are not readily available or constrained or where surface water supplies are constrained based on hydrologic year type, recycled water is often seen as a long-term

reliable source of supply that could extend existing water supplies to meet demands beyond those formerly contemplated.

One option being explored as part of the WRMP is the use of recycled water for agriculture which could supplement groundwater supplies. For example, the reduction in groundwater use in one part of a groundwater basin may "free up" groundwater supplies elsewhere in the same basin. Additional benefits can be achieved by merely having the recycled water infrastructure close enough to communities to bring recycled water to urban areas.

**Table 4-5: Recycled Water Uses - Potential - AF/Year**

| Type of Use | Treatment Level | 2010 | 2015 | 2020 | 2025 | 2030/opt |
|---|---|---|---|---|---|---|
| **Agriculture** | Secondary | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| **Landscape** | Tertiary | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Wildlife Habitat** | | | | | | |
| **Wetlands[1]** | | | | | | |
| **Industrial** | | | | | | |
| **Groundwater Recharge** | | | | | | |
| **Other (type of use)** | | | | | | |
| **Total** | | 24,400 | 24,400 | 24,400 | 24,400 | 24,400 |

Note 1: Wetlands supply will be by agreement with SRCSD and The Nature Conservancy. SCWA is not party to this agreement

| Table 4-6: Projected Future Use of Recycled Water in Service Area - AF/Year | | | | | |
|---|---|---|---|---|---|
| | 2010 | 2015 | 2020 | 2025 | 2030 - opt |
| Agriculture | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 |
| Landscape | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| Wildlife Habitat | | | | | |
| Wetlands | | | | | |
| Industrial | | | | | |
| Groundwater Recharge | | | | | |
| Other (type of use) | | | | | |
| Total projected use of Recycled Water | 24,400 | 24,400 | 24,400 | 24,400 | 24,400 |

| Table 4-7: Recycled Water Uses - 2000 Projection compared with 2004 actual - AF/Year | | |
|---|---|---|
| | 2000 Projection for 2005 | 2004 actual use |
| Agriculture | | |
| Landscape | 1,600 | 803 |
| Wildlife Habitat | | |
| Wetlands | | |
| Industrial | | |
| Groundwater Recharge | | |
| Other (type of use) | | |
| Total | 1,600 | 803 |

***Water Code section 10634.***

*The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.*

# 5. Water Reliability

## *5.1 Water Quality Impacts on Reliability*

There are three primary sources of water supply available to Zone 41 groundwater, surface water and recycled water. Over the period of interest (2005 to 2030), the mixture of supplies will change according to demand and where that demand is located. In the Zone 40 portion of Zone 41, the system is a conjunctive use operation where water supply sources are optimized to provide the highest reliability over the long term. This means that groundwater supplies will be used more in dry years and less in wet years, and surface water less in dry years and more in wet years. Recycled water supplies are not expected to vary much according to hydrologic year type. Zone 41 service areas outside of Zone 40 depend either on groundwater or on surface water (e.g., Metro Air Park (Zone 50)). Water quality has never been deemed by Zone 41 to be an issue in the past and should not be in the future absent significant changes in drinking water standards. In all cases, appropriate measures are taken in terms of water treatment to continue to provide a high reliability of water supply to Zone 41 customers. **Table 5-1** summarizes the current and projected water supply changes that may occur over the planning period from 2005 to 2030 in five year increments.

### 5.1.1 Groundwater

Groundwater has been the primary source of water supply for the majority of Zone 41 over the past 20 years. Groundwater in Sacramento County, for the most part, meets primary drinking water standards. In some portions of the County, arsenic and radon are naturally occurring at levels exceeding the primary drinking water standards. There are also localized areas of the county where groundwater has been compromised by contamination introduced by past industrial disposal practices such as perchlorate and volatile organic compounds (VOCs). Existing wells in areas of contamination are either shut down and replaced with an alternative water supply or have some form of wellhead treatment installed.

Other issues related to groundwater quality in Zone 41 include meeting secondary drinking water standards in all newly constructed wells (this began around 1990), primarily treatment for iron and manganese. In this process, the groundwater is chlorinated prior to a pressurized oxidation/filtration process using manganese zeolite (greensand) as the filter media. This process has also been

found to reduce arsenic concentrations to approximately one-half of the concentration found in the raw groundwater supply.

In 2001, the United States Environmental Protection Agency (US EPA) lowered the drinking water standard for arsenic from 50 parts per billion (ppb) to 10 ppb. All water systems must comply with this standard by January 2006. The California Department of Health Services (DHS) is expected to adopt a new arsenic standard equal to or more stringent than the US EPA's standard, and set this new standard as close as economically feasible to the Public Health Goal (PHG). A PHG is the level of arsenic in drinking water that would not pose a significant health threat if consumed over a lifetime. The DHS arsenic PHG is 4 parts per trillion. DHS has discussed setting the arsenic standard somewhere between 4 ppb and 10 ppb. As of May 2005, DHS was in the regulatory process of updating the MCL and PHG in accordance with Health and Safety Code §116365(a).

Lowering of the arsenic standard does have an impact on Zone 41 groundwater supplies that are not treated as described above in the southern service areas where older wells (prior to 1990) were not constructed for treatment of iron and manganese, and arsenic concentrations are found to be above the new primary drinking water standard levels. The actions currently underway are to decommission high concentration arsenic wells (or outfit as emergency stand-by wells) and replace these wells with new wells that are developed in water bearing zones of the aquifer that contain lower arsenic concentrations and that can be treated using the oxidation/filtration process for iron and manganese removal that will also reduce any arsenic concentration to below the DHS standard.

Map 5-1 shows the wells that will be taken off-line over the next two years as the Bighorn Groundwater Treatment Plant is constructed and new wells are brought on-line. This transition will not pose any risk to reliability of water service to Zone 41 customers. Figure 5-1 provides a time series plot of the south system service area's groundwater and surface water capacity and water demand over the planning period. The "Direct Feed" wells are the source impacted by arsenic. Throughout the planning period, supplies always exceed demand. Other areas potentially affected by arsenic are the south service areas of Zone 41 including Hood, Walnut Grove, Locke, and the Delta Homeowners Association. Walnut Grove is currently installing an arsenic treatment facility.

**Map 5-1: Wells Affected by High Arsenic Concentrations**

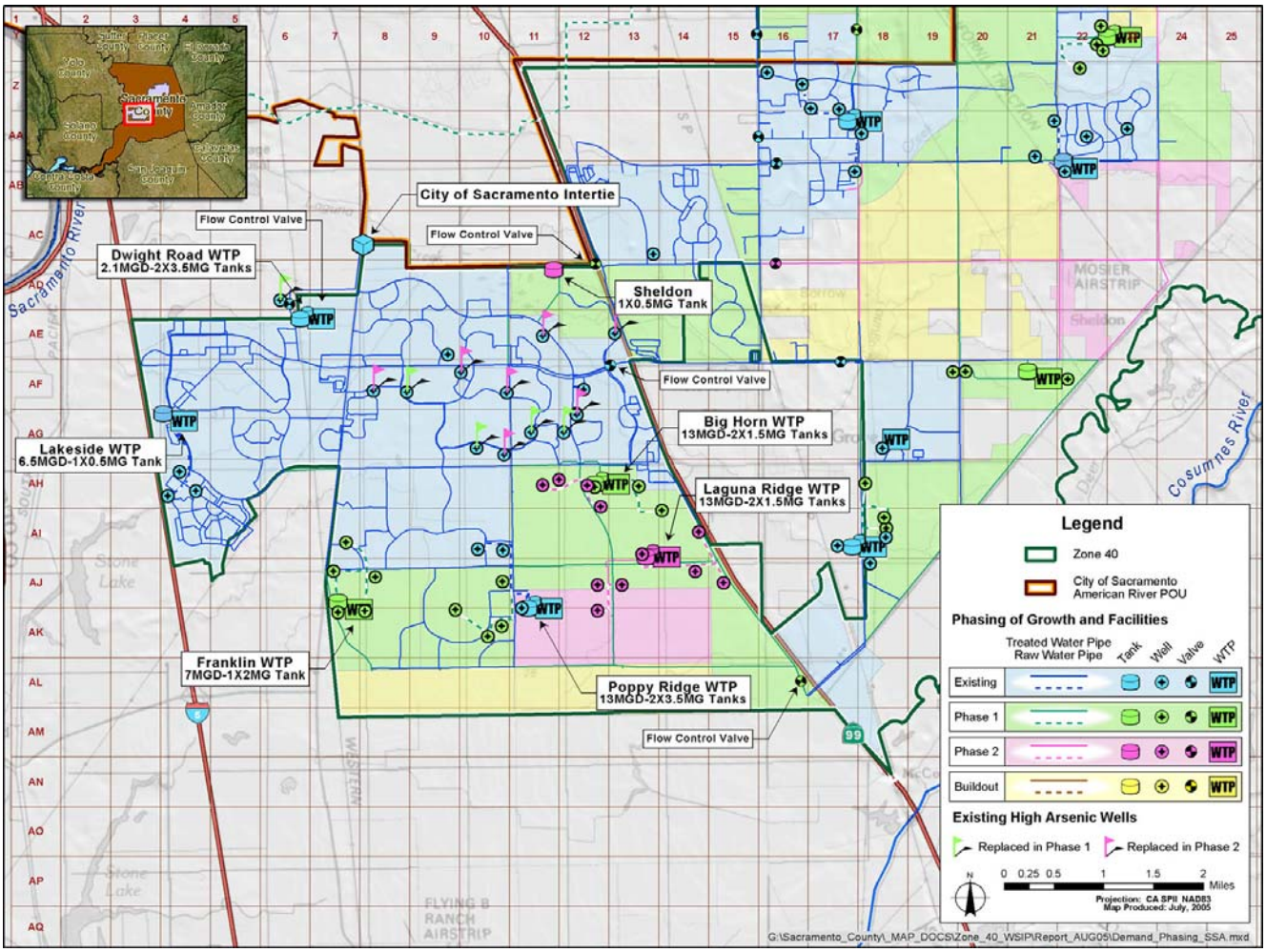
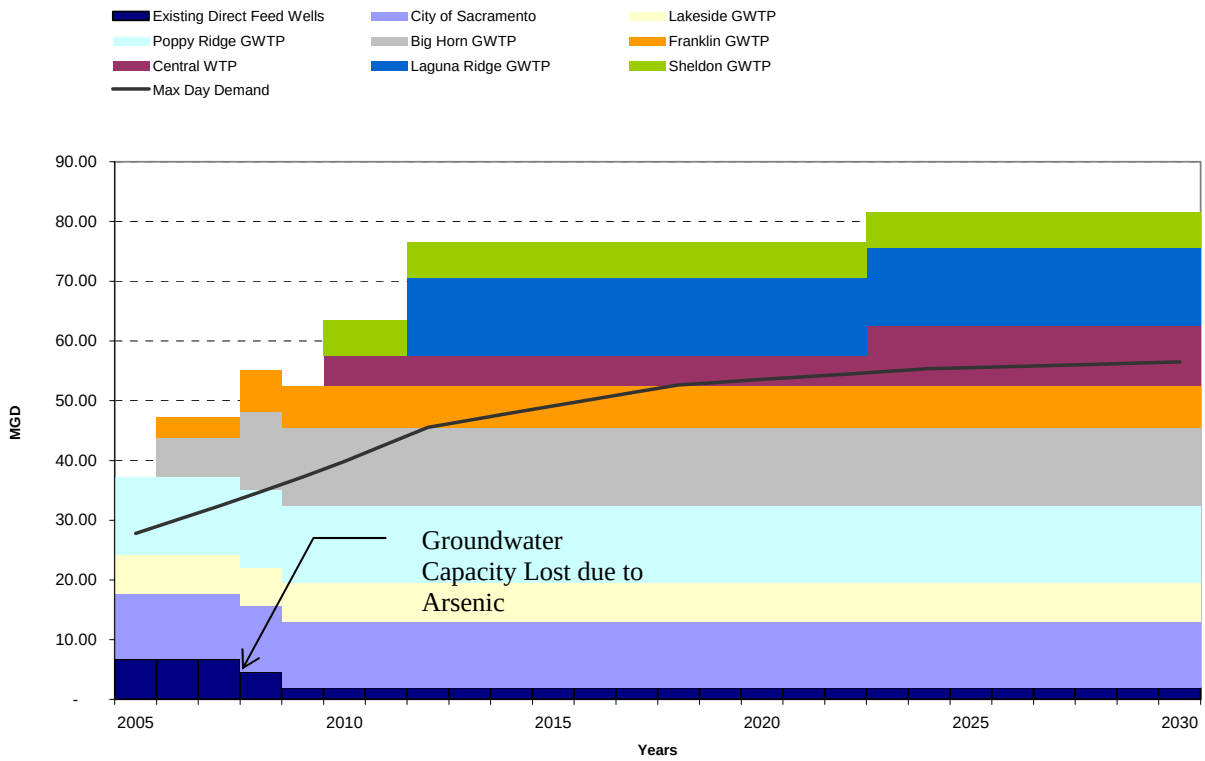


**Figure 5-1: Zone 41 (Zone 40 South Service Area Capacity Only) and Water Quality Impacts from Arsenic**




Source: Draft 2005 Zone 40 WSIP

### 5.1.2 Surface Water

Surface water supplies are available from both the American and Sacramento rivers. Both rivers are considered to be of high quality in terms of meeting drinking water standards with conventional treatment methods. While the American River has slightly higher water quality than the Sacramento River, both rivers are subject to high turbidity during the wet months when sediment and debris are carried by high river flows. The total surface water treatment capacity will vary over time due to increases in water demands as a result of new growth or the need for increased water reliability.

In terms of reliability as a result of water quality changes, only a large contaminant spill could render one or more raw surface water sources untreatable for drinking water. In the Zone 40 portion of Zone 41, there is redundancy in supply with groundwater wells that can be used to offset any shortage of surface water in the winter or spring months. In the Zone 50 portion of Zone 41, the City of

***Water Code section 10635.***

*(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.*

*(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.*

*(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.*

*(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.*

Sacramento's ability to provide its full contract amount may be impacted unless groundwater wells and one of the Sacramento River or American River WTPs is able to continue to provide service. If such an event were to occur in the summer or fall months, severe water rationing would be put in place. **Map 5-2** provides the points of diversion for each river, year of construction if the diversion point does not exist in 2005, and the Zone 41 service area(s) served by the diversion point. The surface water treatment plants, existing and future, are also noted on the map.

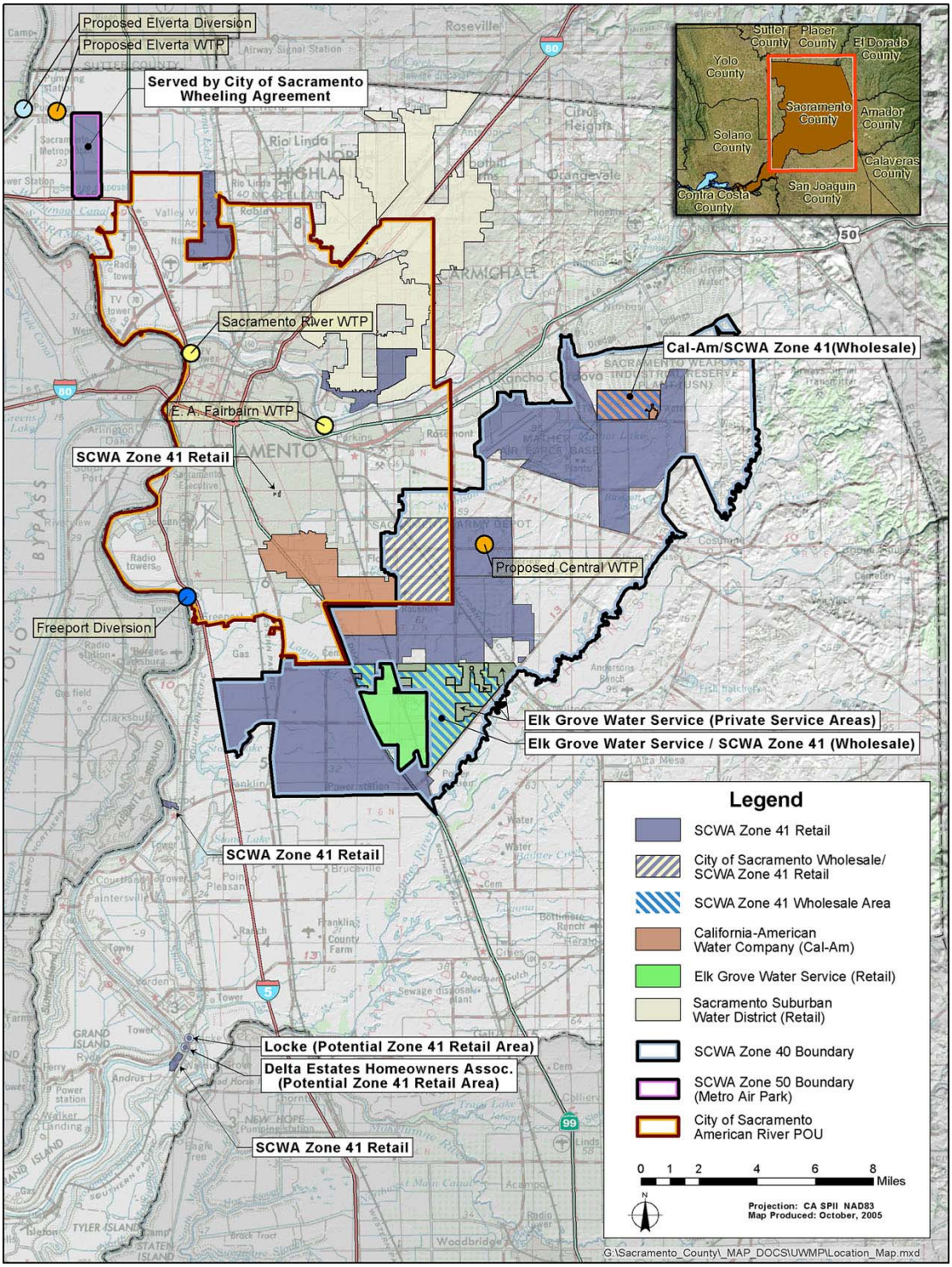
### 5.1.3 Recycled Water

Recycled water is considered to be extremely reliable in terms of quantity and quality given that wastewater effluent is nearly continuous, and has a water quality make-up that, for the most part, does not change with time. Issues such as metals, pharmaceutical products, and other water quality constituents not taken out by the wastewater treatment plant, will be addressed in some form through the tertiary treatment process, even if it is initially a monitoring program, to provide safe reliable non-potable outdoor irrigation supplies to the SRCSD Recycled Water Program service areas within Zone 41. SRCSD has implemented and will continue to evaluate contingency programs in the event of a shutdown of their tertiary treatment system due to water quality issues.

## *5.2 Water Service Reliability*

As discussed in previous sections of the UWMP, Zone 41 water supplies come from three primary sources, groundwater, surface water, and recycled water. Zone 41 service areas that rely solely on groundwater are in groundwater basins that are managed for long term sustainability. North of the American River, the Sacramento Groundwater Authority is the management entity that SCWA is a member of and participates in groundwater management activities as per the Joint Powers Authority that formed SGA, and the SGA Groundwater Management Plan (GMP). South of the American River, the portions of Zone 41 that lie within Zone 40 fall within the boundaries of the adopted Zone 40 GMP. Both groundwater basins rely on conjunctive use of groundwater and surface water to maintain acceptable groundwater elevations and a long term average sustainable extraction yield in accordance with the WFA. The smaller Zone 41 service areas in the Delta, that lie outside either of the two GMPs (Walnut Grove, Hood, Locke, and Delta Estates) still benefit from the GMPs The discussion below pertains to the greater Zone 41 service areas that

**Map 5-2: Existing and Future River Diversion Locations and Surface Water Treatment Plants**



lie either in Zone 40 or in Zone 50 and that rely on surface water to meet all or a portion of their demand.

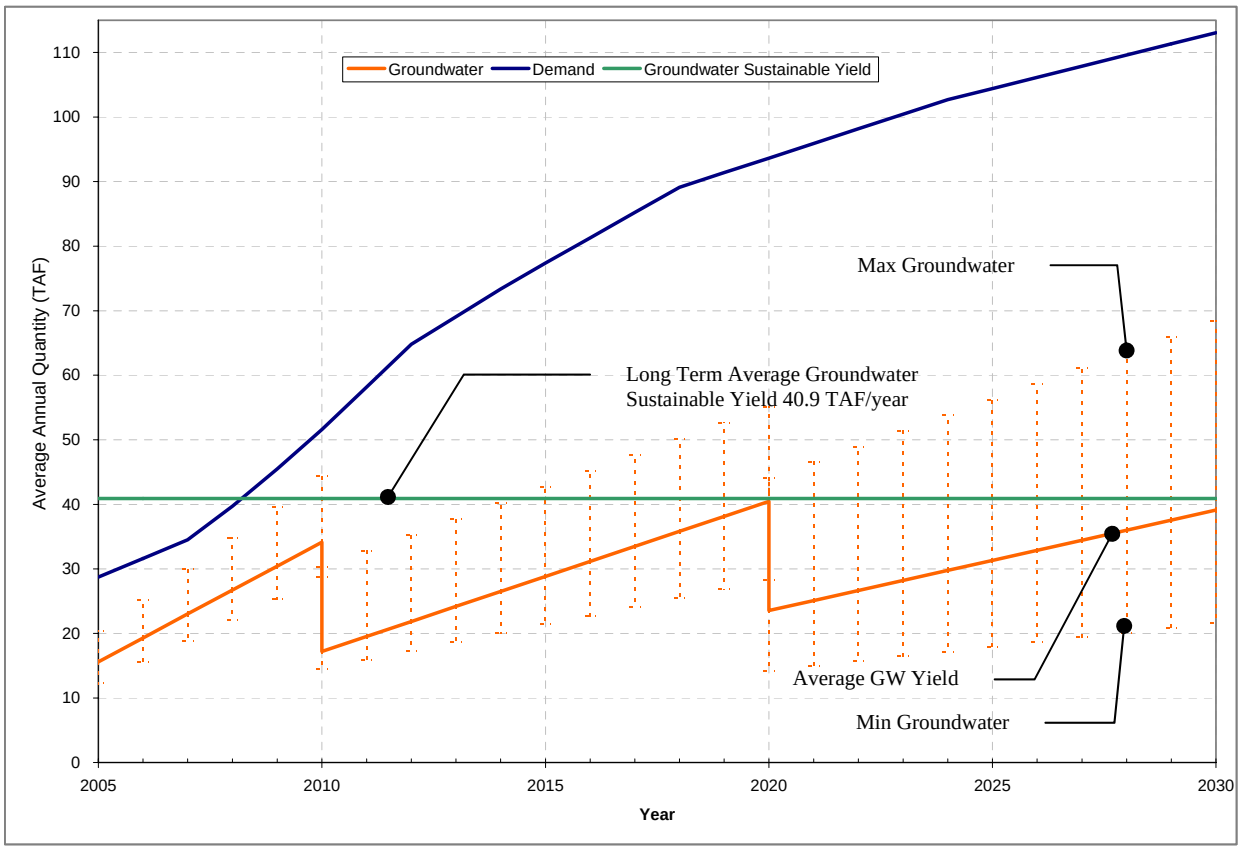
The question of reliability of water supplies during differing hydrologic conditions was studied and well documented through the Water Forum Process. One of the two underlying mission statements of the Water Forum is to "Provide a reliable and safe water supply for the region's economic health and planned development through the year 2030." The WFA, by its existence and successful implementation, implies reliability in groundwater and surface water supplies to 2030.

### 5.2.1 Normal Year and Single Dry Year Water Supply and Demand

For purposes of the UWMP, a normal water year for Zone 41 is a hydrologic year that provides 100 percent of its CVP surface water contract entitlements. For purposes of the UWMP, normal years are defined as the average of above normal rainfall and wet years. In these year-types, there is going to be a higher level of appropriated surface water available in the wet months of the year through the appropriative water contract to be acquired by 2006. The projected supplies under normal water year conditions essentially equal the projected demand for the same year type (no rationing). This is because groundwater and recycled water supplement surface water to make up for any unmet demand after surface water supplies are used. This is typical of any conjunctive use service area. Section 2.10 of the Zone 40 GMP (**Appendix D**) provides a thorough explanation of how the Zone 40 conjunctive use service area of Zone 41 will be provided water in differing hydrologic year types. **Figure 5-2** presents the conjunctive use program in a more basic form indicating the amount of groundwater that will be used on average (the lower solid line) and the maximum and minimum groundwater that could be expected (small vertical bars extending above and below the solid line) from dry to wet years, respectively. This figure also indicates the construction of large increments of surface water capacity with the abrupt changes in groundwater use over time. The areas above the average groundwater use line is the amount of surface water and recycled water necessary to meet total water demand. Below are tables that incorporate the same methodology incorporating the other areas of Zone 41. **Tables 5-2, 5-3** and **5-4** indicates water supplies for each of the Zone 41 service areas under normal year conditions. Under single dry years, **Tables 5-5, 5-6,** and **5-7** provide the water supply

conditions. These tables represent potable drinking water demands only and include rationing in below normal, dry, and critical years of 5 percent, 10 percent, and 15 percent, respectively. The tables do not include projected recycled water use in Zone 40 of 4,400 AF/year.

**Figure 5-2: Zone 40 Conjunctive Use Program Over Planning Period**



| Table 5-1: Normal Year Water Supply (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Supply** | **2010** | **2015** | **2020** | **2025** | **2030** |
| **Zone 40 Surface Water** | 13,060 | 44,143 | 48,772 | 68,700 | 69,567 |
| **Zone 40 Groundwater** | 34,125 | 28,837 | 40,470 | 31,324 | 39,097 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 1,237 | 4,948 | 5,195 | 5,195 | 5,195 |
| **Northgate Groundwater** | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 |
| **Arden Park Groundwater** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Hood Groundwater** | 100 | 100 | 100 | 100 | 100 |
| **Walnut Grove Groundwater** | 76 | 76 | 76 | 76 | 76 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Southwest Tract Groundwater (Note 1)** | 59 | 59 | 59 | 59 | 59 |
| **Locke Groundwater (Potential service area) (Note 2)** | 100 | 100 | 100 | 100 | 100 |
| **Total Supply** | **58,906** | **88,413** | **104,923** | **115,704** | **124,344** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-2: Normal Year Water Demand (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Demand** | **2010** | **2015** | **2020** | **2025** | **2030/opt** |
| **Zone 40** | **51,585** | **77,380** | **93,642** | **104,424** | **113,064** |
| **Zone 50** | **1,237** | **4,948** | **5,195** | **5,195** | **5,195** |
| **Northgate** | **1,300** | **1,300** | **1,300** | **1,300** | **1,300** |
| **Arden Park** | **4,400** | **4,400** | **4,400** | **4,400** | **4,400** |
| **Hood** | **100** | **100** | **100** | **100** | **100** |
| **Walnut Grove** | **76** | **76** | **76** | **76** | **76** |
| **Delta Home Owners Assoc. (Note 1)** | **50** | **50** | **50** | **50** | **50** |
| **Southwest Tract (Note 1)** | **59** | **59** | **59** | **59** | **59** |
| **Locke (Potential service area)(Note 2)** | **100** | **100** | **100** | **100** | **100** |
| **Total Zone 41 Demand** | **58,906** | **88,413** | **104,923** | **115,704** | **124,344** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-3: Normal Year Water Supply and Demand Comparison (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030/opt** |
| Supply totals | 58,780 | 88,287 | 104,797 | 115,578 | 124,218 |
| Demand totals | 58,780 | 88,287 | 104,797 | 115,578 | 124,218 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

| Table 5-4: Single Dry Year Reliability Water Supply (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Supply** | **2010** | **2015** | **2020** | **2025** | **2030** |
| **Zone 40 Surface Water** | 243 | 26,411 | 29,441 | 38,606 | 34,683 |
| **Zone 40 Groundwater** | 44,362 | 42,700 | 55,120 | 56,197 | 68,327 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 1,175 | 4,948 | 5,195 | 5,195 | 5,195 |
| **Northgate Groundwater** | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 |
| **Arden Park Groundwater** | 4,180 | 4,180 | 4,180 | 4,180 | 4,180 |
| **Hood Groundwater** | 95 | 95 | 95 | 95 | 95 |
| **Walnut Grove Groundwater** | 72 | 72 | 72 | 72 | 72 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 48 | 48 | 48 | 48 | 48 |
| **Southwest Tract Groundwater (Note 1)** | 56 | 56 | 56 | 56 | 56 |
| **Locke Groundwater (Potential service area) (Note 2)** | 95 | 95 | 95 | 95 | 95 |
| **Total Supply** | **55,961** | **84,240** | **99,936** | **110,179** | **118,387** |
| **Percent of Normal Year** | **95%** | **95%** | **95%** | **95%** | **95%** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-5: Single Dry Year Reliability Water Demand (AF/Year) | | | | | |
|---|---|---|---|---|---|
| **Demand** | **2010** | **2015** | **2020** | **2025** | **2030/opt** |
| **Zone 40** | 49,005 | 73,511 | 88,960 | 99,203 | 107,411 |
| **Zone 50 Surface Water** | 1,175 | 4,948 | 5,195 | 5,195 | 5,195 |
| **Northgate Groundwater** | 1,235 | 1,235 | 1,235 | 1,235 | 1,235 |
| **Arden Park Groundwater** | 4,180 | 4,180 | 4,180 | 4,180 | 4,180 |
| **Hood Groundwater** | 95 | 95 | 95 | 95 | 95 |
| **Walnut Grove** | 72 | 72 | 72 | 72 | 72 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 48 | 48 | 48 | 48 | 48 |
| **Southwest Tract Groundwater (Note 1)** | 56 | 56 | 56 | 56 | 56 |
| **Locke (Potential service area)(Note 2)** | 95 | 95 | 95 | 95 | 95 |
| **Total Zone 41 Demand** | **55,961** | **84,240** | **99,936** | **110,179** | **118,387** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-6: Single Dry Year Reliability Water Supply and Demand Comparison (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | **2025** | **2030/opt** |
| Supply totals | 55,841 | 84,120 | 99,816 | 110,059 | 118,267 |
| Demand totals | 55,841 | 84,120 | 99,816 | 110,059 | 118,267 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

### 5.2.2 Multiple-Dry-Year Historical Sequence over Planning Period to 2030

**Table 5-8** assumes the historical hydrologic sequence from 1968 to 1992 that includes the 1977 drought and the 1987 drought each followed or preceded by wet or normal conditions. **Table 5-11** to **Table 5-22** are looking at five year dry year cycles using the 1986 to 1991 drought sequence as the dry hydrologic period for each 5 year increment. Rationing is included in the demands under dry conditions based on the severity of drought. Demand rationing can be 5%, 10%, or 15% depending on the CVP curtailment of surface water supplies.

**Table 5-7: Projected Supply During Multiple Dry Year Hydrologic Period (AF/Year)**

| Year | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zone 40 Surface Water | 13,074 | 14,428 | 37,723 | 19,166 | 22,160 | 46,027 | 40,730 | 42,165 | 54,600 | 52,596 | 58,191 | 59,916 | 61,642 |
| Zone 40 Groundwater | 14,095 | 16,827 | 19,560 | 22,292 | 25,025 | 7,769 | 9,955 | 12,142 | 14,328 | 16,515 | 18,702 | 20,888 | 23,075 |
| Zone 40 Recycled Water | 2,880 | 3,260 | 3,640 | 4,020 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| Zone 50 Surface Water | 197 | 364 | 494 | 649 | 779 | 1,143 | 1,281 | 1,501 | 2,026 | 2,418 | 3,065 | 3,585 | 4,104 |
| Northgate Groundwater | 1,235 | 1,300 | 1,235 | 1,300 | 1,300 | 1,300 | 1,105 | 1,105 | 1,300 | 1,235 | 1,300 | 1,300 | 1,300 |
| Arden Park Groundwater | 4,180 | 4,400 | 4,180 | 4,400 | 4,400 | 4,400 | 3,740 | 3,740 | 4,400 | 4,180 | 4,400 | 4,400 | 4,400 |
| Hood Groundwater | 95 | 100 | 95 | 100 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| Walnut Grove Groundwater | 72 | 76 | 72 | 76 | 76 | 76 | 65 | 65 | 76 | 72 | 76 | 76 | 76 |
| Delta Home Owners Assoc. Groundwater (Note 1) | 48 | 50 | 48 | 50 | 50 | 50 | 43 | 43 | 50 | 48 | 50 | 50 | 50 |
| Southwest Tract Groundwater (Note 1) | 56 | 59 | 56 | 59 | 59 | 59 | 50 | 50 | 59 | 56 | 59 | 59 | 59 |
| Locke Groundwater (Potential service area) (Note 2) | 95 | 100 | 95 | 100 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| **Total Supply** | **36,027** | **40,963** | **67,197** | **52,212** | **58,473** | **65,447** | **61,558** | **65,401** | **81,463** | **81,733** | **90,466** | **94,898** | **99,330** |
| **Supply** | | | | | | | | | | | | | |
| **% of projected normal** | 95.0% | 100.0% | 95.0% | 100.0% | 100.0% | 100.0% | 85.0% | 85.0% | 100.0% | 95.0% | 100.0% | 100.0% | 100.0% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

**Table 5-7 Continued: Projected Supply During Multiple Dry Year Hydrologic Period (AF/Year)**

| Year | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Zone 40 Surface Water** | 61,718 | 61,794 | 75,821 | 77,078 | 73,313 | 74,456 | 75,147 | 75,837 | 76,528 | 77,219 | 94,612 | 95,550 |
| **Zone 40 Groundwater** | 25,261 | 27,448 | 6,093 | 6,873 | 7,653 | 8,434 | 9,214 | 9,994 | 10,774 | 11,554 | 12,334 | 13,114 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 5,195 | 5,195 | 4,676 | 4,676 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 5,195 | 5,195 |
| **Northgate Groundwater** | 1,300 | 1,300 | 1,170 | 1,170 | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 | 1,300 | 1,300 |
| **Arden Park Groundwater** | 4,400 | 4,400 | 3,960 | 3,960 | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 | 4,400 | 4,400 |
| **Hood Groundwater** | 100 | 100 | 90 | 90 | 85 | 85 | 85 | 85 | 85 | 85 | 100 | 100 |
| **Walnut Grove Groundwater** | 76 | 76 | 68 | 68 | 65 | 65 | 65 | 65 | 65 | 65 | 76 | 76 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 50 | 50 | 45 | 45 | 43 | 43 | 43 | 43 | 43 | 43 | 50 | 50 |
| **Southwest Tract Groundwater (Note 1)** | 59 | 59 | 53 | 53 | 50 | 50 | 50 | 50 | 50 | 50 | 59 | 59 |
| **Locke Groundwater (Potential service area) (Note 2)** | 100 | 100 | 90 | 90 | 85 | 85 | 85 | 85 | 85 | 85 | 100 | 100 |
| **Total Supply** | **102,660** | **104,923** | **96,467** | **98,503** | **94,954** | **96,878** | **98,348** | **99,819** | **101,290** | **102,761** | **122,626** | **124,344** |
| Supply | | | | | | | | | | | | |
| % of projected normal | 100.0% | 100.0% | 90.0% | 90.0% | 85.0% | 85.0% | 85.0% | 85.0% | 85.0% | 85.0% | 100.0% | 100.0% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-8: Projected Demand during Multiple Dry Year Hydrologic Period (AF/Year) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| **Zone 40** | 30,049 | 34,515 | 60,923 | 45,478 | 51,585 | 58,195 | 55,085 | 58,707 | 73,328 | 73,511 | 81,292 | 85,205 | 89,117 |
| **Zone 50 Surface Water** | 1,880 | 1,484 | 1,410 | 1,237 | 1,237 | 3,464 | 2,944 | 2,103 | 2,474 | 4,701 | 4,948 | 4,948 | 4,948 |
| **Northgate Groundwater** | 1,235 | 1,300 | 1,235 | 1,300 | 1,300 | 1,300 | 1,105 | 1,105 | 1,300 | 1,235 | 1,300 | 1,300 | 1,300 |
| **Arden Park Groundwater** | 4,180 | 4,400 | 4,180 | 4,400 | 4,400 | 4,400 | 3,740 | 3,740 | 4,400 | 4,180 | 4,400 | 4,400 | 4,400 |
| **Hood Groundwater** | 95 | 100 | 95 | 100 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| **Walnut Grove** | 72 | 76 | 72 | 76 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 48 | 50 | 48 | 50 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| **Southwest Tract Groundwater (Note 1)** | 56 | 59 | 56 | 59 | 59 | 59 | 50 | 50 | 59 | 56 | 59 | 59 | 59 |
| **Locke (Potential service area)(Note 2)** | 95 | 100 | 95 | 100 | 100 | 100 | 85 | 85 | 100 | 95 | 100 | 100 | 100 |
| **Total Demand** | **37,710** | **42,084** | **68,113** | **52,800** | **58,980** | **67,818** | **63,264** | **66,045** | **81,961** | **84,063** | **92,399** | **96,311** | **100,224** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-8 Continued: Projected Demand during Multiple Dry Year Hydrologic Period (AF/Year) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** |
| **Zone 40** | 91,380 | 93,642 | 86,315 | 88,351 | 85,366 | 87,289 | 88,760 | 90,231 | 91,702 | 93,173 | 111,346 | 113,064 |
| **Zone 50 Surface Water** | 5,195 | 5,195 | 4,676 | 4,676 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 | 5,195 | 5,195 |
| **Northgate Groundwater** | 1,300 | 1,300 | 1,170 | 1,170 | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 | 1,300 | 1,300 |
| **Arden Park Groundwater** | 4,400 | 4,400 | 3,960 | 3,960 | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 | 4,400 | 4,400 |
| **Hood Groundwater** | 100 | 100 | 90 | 90 | 85 | 85 | 85 | 85 | 85 | 85 | 100 | 100 |
| **Walnut Grove** | 76 | 76 | 68 | 68 | 65 | 65 | 65 | 65 | 65 | 65 | 76 | 76 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 50 | 50 | 45 | 45 | 43 | 43 | 43 | 43 | 43 | 43 | 50 | 50 |
| **Southwest Tract Groundwater (Note 1)** | 59 | 59 | 53 | 53 | 50 | 50 | 50 | 50 | 50 | 50 | 59 | 59 |
| **Locke (Potential service area)(Note 2)** | 100 | 100 | 90 | 90 | 85 | 85 | 85 | 85 | 85 | 85 | 100 | 100 |
| **Total Demand** | **102,660** | **104,923** | **96,467** | **98,503** | **94,954** | **96,878** | **98,348** | **99,819** | **101,290** | **102,761** | **122,626** | **124,344** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-9: Projected Demand and Supply Comparison During Multiple Dry Year Hydrologic Period (AF/Year) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2006** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** |
| Supply totals | 37,710 | 42,084 | 68,113 | 52,800 | 58,980 | 67,818 | 63,264 | 66,045 | 81,961 | 84,063 | 92,399 | 96,311 | 100,224 |
| Demand totals | 37,710 | 42,084 | 68,113 | 52,800 | 58,980 | 67,818 | 63,264 | 66,045 | 81,961 | 84,063 | 92,399 | 96,311 | 100,224 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Difference as % of Demand | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

| Table 5-9 Continued: Projected Demand and Supply Comparison During Multiple Dry Year Hydrologic Period (AF/Year) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** | **2029** | **2030** |
| Supply totals | 102,660 | 104,923 | 96,467 | 98,503 | 94,954 | 96,878 | 98,348 | 99,819 | 101,290 | 102,761 | 122,626 | 124,344 |
| Demand totals | 102,660 | 104,923 | 96,467 | 98,503 | 94,954 | 96,878 | 98,348 | 99,819 | 101,290 | 102,761 | 122,626 | 124,344 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Difference as % of Demand | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |

| Table 5-10: Projected supply during multiple dry year period ending in 2015 – (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| **Zone 40 Surface Water** | 32,592 | 35,969 | 37,348 | 38,728 | 39,929 |
| **Zone 40 Groundwater** | 12,474 | 14,716 | 16,959 | 19,201 | 21,444 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 2,944 | 2,944 | 2,103 | 2,103 | 4,206 |
| **Northgate Groundwater** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park Groundwater** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood Groundwater** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove Groundwater** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract Groundwater (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke Groundwater (Potential service area) (Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Supply** | **57,582** | **63,201** | **65981.97** | **69,604** | **75,151** |
| % of projected normal | 85.0% | 85.0% | 85.0% | 85.0% | 85.0% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-11: Projected demand multiple dry year period ending in 2015 – (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| **Zone 40** | 49,466 | 55,085 | 58,707 | 62,329 | 65,773 |
| **Zone 50** | 2,944 | 2,944 | 2,103 | 2,103 | 4,206 |
| **Northgate** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke (Potential service area)(Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Total Demand** | **57,582** | **63,201** | **65,982** | **69,604** | **75,151** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-12: Projected Supply and Demand Comparison during multiple dry year period ending in 2015- (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| Supply totals | 57,475 | 63,094 | 65,875 | 81,761 | 83,873 |
| Demand totals | 57,475 | 63,094 | 65,875 | 81,761 | 83,873 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

| Table 5-14: Projected supply during multiple dry year period ending in 2020 – (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| **Zone 40 Surface Water** | 41,012 | 42,095 | 43,178 | 42,858 | 42,539 |
| **Zone 40 Groundwater** | 23,687 | 25,929 | 28,172 | 30,414 | 32,657 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 4,206 | 4,206 | 4,206 | 4,416 | 4,416 |
| **Northgate Groundwater** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park Groundwater** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood Groundwater** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove Groundwater** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract Groundwater (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke Groundwater (Potential service area) (Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Supply** | **78,476** | **81,802** | **85,127** | **87,261** | **89,184** |
| % of projected normal | 85.0% | 85.0% | 85.0% | 85.0% | 85.0% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-14: Projected demand multiple dry year period ending in 2020 - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| **Zone 40** | 69,099 | 72,424 | 75,749 | 77,673 | 79,596 |
| **Zone 50** | 4,206 | 4,206 | 4,206 | 4,416 | 4,416 |
| **Northgate** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke (Potential service area)(Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Total Demand** | **78,476** | **81,802** | **85,127** | **87,261** | **89,184** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-15: Projected Supply and Demand Comparison during multiple dry year period ending in 2020- (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| Supply totals | 78,476 | 81,802 | 85,127 | 87,261 | 89,184 |
| Demand totals | 78,476 | 81,802 | 85,127 | 87,261 | 89,184 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

| Table 5-16: Projected supply during multiple dry year period ending in 2025 - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Zone 40 Surface Water** | 63,422 | 64,255 | 65,088 | 65,922 | 66,303 |
| **Zone 40 Groundwater** | 13,698 | 14,788 | 15,878 | 16,968 | 18,058 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 |
| **Northgate Groundwater** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park Groundwater** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood Groundwater** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove Groundwater** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract Groundwater (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke Groundwater (Potential service area) (Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Supply** | **91,107** | **93,031** | **94,954** | **96,878** | **98,348** |
| % of projected normal | 85% | 85% | 85% | 85% | 85% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-17: Projected demand multiple dry year period ending in 2025 - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| **Zone 40** | 81,519 | 83,443 | 85,366 | 87,289 | 88,760 |
| **Zone 50** | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 |
| **Northgate** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke (Potential service area)(Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Total Demand** | **91,107** | **93,031** | **94,954** | **96,878** | **98,348** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-18: Projected Supply and Demand Comparison during multiple dry year period ending in 2025- (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 |
| Supply totals | 91,107 | 93,031 | 94,954 | 96,878 | 98,348 |
| Demand totals | 91,107 | 93,031 | 94,954 | 96,878 | 98,348 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

| Table 5-19: Projected supply during multiple dry year period ending in 2030 - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2026 | 2027 | 2028 | 2029 | 2030 |
| **Zone 40 Surface Water** | 66,684 | 67,065 | 67,446 | 67,827 | 68,197 |
| **Zone 40 Groundwater** | 19,148 | 20,238 | 21,328 | 22,417 | 23,507 |
| **Zone 40 Recycled Water** | 4,400 | 4,400 | 4,400 | 4,400 | 4,400 |
| **Zone 50 Surface Water** | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 |
| **Northgate Groundwater** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park Groundwater** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood Groundwater** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove Groundwater** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. Groundwater (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract Groundwater (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke Groundwater (Potential service area) (Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Supply** | **99,819** | **101,290** | **102,761** | **104,232** | **105,693** |
| % of projected normal | 85% | 85% | 85% | 85% | 85% |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-20: Projected demand multiple dry year period ending in 2030 - (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2026 | 2027 | 2028 | 2029 | 2030 |
| **Zone 40** | 90,231 | 91,702 | 93,173 | 94,644 | 96,104 |
| **Zone 50** | 4,416 | 4,416 | 4,416 | 4,416 | 4,416 |
| **Northgate** | 1,105 | 1,105 | 1,105 | 1,105 | 1,105 |
| **Arden Park** | 3,740 | 3,740 | 3,740 | 3,740 | 3,740 |
| **Hood** | 85 | 85 | 85 | 85 | 85 |
| **Walnut Grove** | 65 | 65 | 65 | 65 | 65 |
| **Delta Home Owners Assoc. (Note 1)** | 43 | 43 | 43 | 43 | 43 |
| **Southwest Tract (Note 1)** | 50 | 50 | 50 | 50 | 50 |
| **Locke (Potential service area)(Note 2)** | 85 | 85 | 85 | 85 | 85 |
| **Total Demand** | **99,819** | **101,290** | **102,761** | **104,232** | **105,693** |

Note 1. Estimate based on number of units at 2/3 AFA/unit
Note 2. Based on engineering judgment due to insufficient information

| Table 5-21: Projected Supply and Demand Comparison during multiple dry year period ending in 2030- (AF/Year) | | | | | |
|---|---|---|---|---|---|
| | 2026 | 2027 | 2028 | 2029 | 2030 |
| Supply totals | 99,819 | 101,290 | 102,761 | 104,232 | 105,693 |
| Demand totals | 99,819 | 101,290 | 102,761 | 104,232 | 105,693 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as % of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as % of Demand | 0% | 0% | 0% | 0% | 0% |

***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.*

***Water Code section 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.*

# 6. Adoption and Implementation of UWMP

The UWMP was adopted by SCWA on December 6, 2005. A copy of the public notices and Board of Directors' resolution is included in **Appendix G**. After adoption SCWA provided copies of the plan to DWR, cities, wholesale and retail water jurisdictions, and others as listed in **Table 1-1**. SCWA has also made a copy of the UWMP available on their web site www.msa.saccounty.net/waterresources to interested stakeholders and the general public. SCWA will implement its UWMP according to the schedule set for in this document.

***Water Code section 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.*

***Water Code section 10643.***

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

***Water Code section 10644.***

*(a) An urban water supplier shall submit to the department, the California State Library, 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 submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.*

*(b) 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.*

***Water Code section 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.*

***Water Code section 10650.***

*Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:*

*(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.*

*(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.*

***Water Code section 10651.***

*In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.*

# *7. Miscellaneous Provisions*

This section lists the miscellaneous Water Code sections of the Urban Water Management Plan Act that SCWA will follow.

***Water Code section 10652.***

*The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.*

***Water Code section 10653.***

*The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.*

***Water Code section 10654.***

*An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.*

***Water Code section 10655.***

*If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.*

***Water Code section 10656.***

*An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.*

***Water Code section 10657.***

*(a) The department shall take into consideration whether the urban water supplier has submitted an updated urban water management plan that is consistent with Section 10631, 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.*

*(b) This section shall remain in effect only until January 1, 2006, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2006, deletes or extends that date.*

# APPENDIX A

2005 URBAN WATER MANAGEMENT PLAN CHECKLIST

## 2005 Urban Water Management Plan Checklist

| Coordination with Appropriate Agencies | | | (Water Code § 10620 (d)(1)(2)) | |
|---|---|---|---|---|
| Yes | No | | | |
| | ✓ | Participated in area, regional, watershed or basin wide plan | n/a | Section Reference |
| ✓ | | Describe the coordination of the plan preparation and anticipated benefits. | 1.3 | Section Reference |

| Describe resource maximization / import minimization plan | | | (Water Code §10620 (f)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe how water management tools / options maximize resources & minimize need to import water | 1.2 | Section Reference |

| Plan Updated in Years Ending in Five and Zero | | | (Water Code § 10621(a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Date updated and adopted plan received 12/6/2005 (enter date) | 6 | Section Reference |

| City and County Notification and Participation | | | (Water Code § 10621(b)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Notify any city or county within service area of UWMP of plan review & revision | 1.3.1 | Section Reference |
| ✓ | | Consult and obtain comments from cities and counties within service area | 1.3.1 | Section Reference |

| Service Area Information | | | Water Code § 10631 (a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Include current and projected population | 1.4.1 | Section Reference |
| ✓ | | Population projections were based on data from state, regional or local agency | 1.4.1 | Section Reference |
| ✓ | | Describe climate characteristics that affect water management | 1.4.2 | Section Reference |
| ✓ | | Describe other demographic factors affecting water management | 1.4.2 | Section Reference |

| Water Sources | | | (Water Code § 10631 (b)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Identify existing and planned water supply sources | 2.1 | Section Reference |
| ✓ | | Provide current water supply quantities | 2.1 | Section Reference |
| ✓ | | Provide planned water supply quantities | 2.1 | Section Reference |

| If Groundwater identified as existing or planned source | | | (Water Code §10631 (b)(1-4)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Has management plan | 2.2.1 | Section Reference |
| ✓ | | Attached management plan (b)(1) | Appendix C, D | Section Reference |
| ✓ | | Description of basin(s) (b)(2) | 2.2 | Section Reference |
| | ✓ | Basin is adjudicated | n/a | Section Reference |
| | ✓ | DWR identified, or projected to be, in overdraft (b)(2) | n/a | Section Reference |
| ✓ | | Analysis of location & amount projected, 20 years (b)(4) | 2.2.2 | Section Reference |

| Reliability of Supply | | | (Water Code §10631 (c) (1-3) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describes the reliability of the water supply and vulnerability to seasonal or climatic shortage | 2.3 | Section Reference |

| Water Sources Not Available on a Consistent Basis | | | (Water Code §10631 (c)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe the reliability of the water supply due to seasonal or climatic shortages | 2.3 | Section Reference |

| | | | | |
|---|---|---|---|---|
| ✓ | | Identify and quantify additional water uses | 2.5 | Section Reference |

| Planned Water Supply Projects and Programs, including non-implemented DMMs | | | (Water Code §10631 (g)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | No non-implemented / not scheduled DMMs | 2.6.1, Appendix E | Section Reference |
| ✓ | | Cost-Benefit includes economic and non-economic factors (environmental, social, health, customer impact, and technological factors) | 2.6.1, Appendix E | Section Reference |
| ✓ | | Cost-Benefit analysis includes total benefits and total costs | 2.6.1, Appendix E | Section Reference |
| ✓ | | Identifies funding available for Projects with higher per-unit-cost than DMMs | 2.6.1, Appendix E | Section Reference |
| ✓ | | Identifies Suppliers' legal authority to implement DMMs, efforts to implement the measures and efforts to identify cost share partners | 2.6.1, Appendix E | Section Reference |

| Planned Water Supply Projects and Programs | | | (Water Code §10631 (h)) | |
|---|---|---|---|---|
| Yes | No | | | |
| | ✓ | No future water supply projects or programs | 2.7 | Section Reference |
| ✓ | | Detailed description of expected future supply projects & programs | 2.7 | Section Reference |
| ✓ | | Timeline for each proposed project | 2.7 | Section Reference |
| ✓ | | Quantification of each projects normal yield (AFY) | 2.7 | Section Reference |
| ✓ | | Quantification of each projects single dry-year yield (AFY) | 2.7 | Section Reference |
| ✓ | | Quantification of each projects multiple dry-year yield (AFY) | 2.7 | Section Reference |

| Opportunities for development of desalinated water | | | (Water Code §10631 (i)) |
|---|---|---|---|
| Yes | No | | |
| | n/a | Describes opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply | |
| ✓ | | No opportunities for development of desalinated water | |

| District is a CUWCC signatory | | | (Water Code § 10631 (j)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Agency is a CUWCC member | 2.6.1, Appendix E | Section Reference |
| ✓ | | 2003-04 annual updates are attached to plan | 2.6.1, Appendix E | Section Reference |
| ✓ | | Both annual updates are considered completed by CUWCC website | 2.6.1, Appendix E | Section Reference |

| If Supplier receives or projects receiving water from a wholesale supplier | | | (Water Code §10631 (k)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Agency receives, or projects receiving, wholesale water | 2.7.3 | Section Reference |
| ✓ | | Agency provided written demand projections to wholesaler, 20 years | 2.7.3 | Section Reference |
| ✓ | | Wholesaler provided written water availability projections, by source, to agency, 20 years | 2.7.3 | Section Reference |
| ✓ | | Reliability of wholesale supply provided in writing by wholesale agency | 2.7.3 | Section Reference |

| Water Shortage Contingency Plan Section<br>Stages of Action | | | (Water Code § 10632)<br>(Water Code § 10632 (a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Provide stages of action | 3.1 | Section Reference |
| ✓ | | Provide the water supply conditions for each stage | 3.1 | Section Reference |
| ✓ | | Includes plan for 50 percent supply shortage | 3.1 | Section Reference |

| Yes | No | | | |
|---|---|---|---|---|
| ✓ | | List the consumption reduction methods the water supplier will use to reduce water use in the most restrictive stages with up to a 50% reduction. | 3.4 | Section Reference |

| Penalties | | | (Water Code § 10632 (f)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | List excessive use penalties or charges for excessive use | 3.4 | Section Reference |

| Revenue and Expenditure Impacts | | | (Water Code § 10632 (g)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe how actions and conditions impact revenues | 3.5 | Section Reference |
| ✓ | | Describe how actions and conditions impact expenditures | 3.5 | Section Reference |
| ✓ | | Describe measures to overcome the revenue and expenditure impacts | 3.5 | Section Reference |

| Water Shortage Contingency Ordinance/Resolution | | | (Water Code § 10632 (h)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Attach a copy of the draft water shortage contingency resolution or ordinance. | 3.6.1, Appendix F | Section Reference |

| Reduction Measuring Mechanism | | | (Water Code § 10632 (i)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Provided mechanisms for determining actual reductions | 3.6.2 | Section Reference |

| Recycling Plan Agency Coordination | | | Water Code § 10633 | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe the coordination of the recycling plan preparation information to the extent available.. | 4.1 | Section Reference |

| Wastewater System Description | | | (Water Code § 10633 (a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe the wastewater collection and treatment systems in the supplier's service area | 4.2 | Section Reference |
| ✓ | | Quantify the volume of wastewater collected and treated | 4.2 | Section Reference |

| Wastewater Disposal and Recycled Water Uses | | | (Water Code § 10633 (a - d)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describes methods of wastewater disposal | 4.2.1.2 | Section Reference |
| ✓ | | Describe the current type, place and use of recycled water | 4.3 | Section Reference |
| ✓ | | Describe and quantify potential uses of recycled water | 4.3 | Section Reference |
| ✓ | | Determination of technical and economic feasibility of serving the potential uses | 4.3.5 | Section Reference |

| Projected Uses of Recycled Water | | | (Water Code § 10633 (e)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Projected use of recycled water, 20 years | 4.3 | Section Reference |
| ✓ | | Compare UWMP 2000 projections with UWMP 2005 actual | 4.3 | Section Reference |

| Plan to Optimize Use of Recycled Water | | | (Water Code § 10633 (f)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Describe actions that might be taken to encourage recycled water uses | 4.3 | Section Reference |
| ✓ | | Describe projected results of these actions in terms of acre-feet of recycled water used per year | 4.3 | Section Reference |
| ✓ | | Provide a recycled water use optimization plan which includes actions to facilitate the use of recycled water (dual distribution systems, promote recirculating uses) | 4.3 | Section Reference |

| Water quality impacts on availability of supply | (Water Code §10634) |
|---|---|

| Supply and Demand Comparison: Multiple-dry Year Scenario | | | (Water Code § 10635 (a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Project a multiple-dry year period (as identified in Table 9) occurring between 2006-2010 and compare projected supply and demand during those years | 5.2 | Section Reference |
| ✓ | | Project a multiple-dry year period (as identified in Table 9) occurring between 2011-2015 and compare projected supply and demand during those years | 5.2 | Section Reference |
| ✓ | | Project a multiple-dry year period (as identified in Table 9) occurring between 2016-2020 and compare projected supply and demand during those years | 5.2 | Section Reference |
| ✓ | | Project a multiple-dry year period (as identified in Table 9) occurring between 2021-2025 and compare projected supply and demand during those years | 5.2 | Section Reference |

| Provision of Water Service Reliability section to cities/counties within service area | | | (Water Code § 10635(b)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Provided Water Service Reliability section of UWMP to cities and counties within which it provides water supplies within 60 days of UWMP submission to DWR | 6 | Section Reference |

| Does the Plan Include Public Participation and Plan Adoption | | | (Water Code § 10642) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Attach a copy of adoption resolution | Appendix G | Section Reference |
| ✓ | | Encourage involvement of social, cultural & economic community groups | 6 | Section Reference |
| ✓ | | Plan available for public inspection | 6 | Section Reference |
| ✓ | | Provide proof of public hearing | 6 | Section Reference |
| ✓ | | Provided meeting notice to local governments | Appendix G | Section Reference |

| Review of implementation of 2000 UWMP | | | (Water Code § 10643) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Reviewed implementation plan and schedule of 2000 UWMP | 1.1 | Section Reference |
| ✓ | | Implemented in accordance with the schedule set forth in plan | 1.1 | Section Reference |
| | ✓ | 2000 UWMP not required | 1.1 | Section Reference |

| Provision of 2005 UWMP to local governments | | | (Water Code § 10644 (a)) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Provide 2005 UWMP to DWR, and cities and counties within 30 days of adoption | 6 | Section Reference |

| Does the plan or correspondence accompanying it show where it is available for public review | | | (Water Code § 10645) | |
|---|---|---|---|---|
| Yes | No | | | |
| ✓ | | Does UWMP or correspondence accompanying it show where it is available for public review | 6 | Section Reference |

# APPENDIX B

CENTRAL SACRAMENTO COUNTY GROUNDWATER FORUM AGENDA
FOR OCTOBER 27, 2005

# CENTRAL SACRAMENTO COUNTY GROUNDWATER FORUM

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## DRAFT AGENDA: October 27, 2005

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| | |
|---|---|
| 5:30 – 5:35 | Introductions |
| 5:35 – 5:40 | Disclosures and Announcements |
| 5:40 – 5:45 | Zone ~~40~~ 41 Urban Water Management Plan |
| 5:45 – 6:00 | GMP Task Force: Update |
| 6:00 – 6:45 | Impact Analysis: Update by WRIME Staff |
| 6:45 | Adjourn |

Next Meeting: January 26, 2006

# APPENDIX C

SACRAMENTO GROUNDWATER AUTHORITY GROUNDWATER MANAGEMENT PLAN

# Sacramento Groundwater Authority Groundwater Management Plan

SGA

December 2003

# GROUNDWATER MANAGEMENT PLAN

DECEMBER 2003

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**Sacramento Groundwater Authority**
*Managing Groundwater Resources in Northern Sacramento County*

December 11, 2003

**Sacramento Groundwater Authority**
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***Members:***
*California-American Water Company*
*Carmichael Water District*
*Citrus Heights Water District*
*Del Paso Manor Water District*
*Fair Oaks Water District*
*Folsom, city of*
*Natomas Central Mutual Water Company*
*Orange Vale Water Company*
*Rio Linda/Elverta Community Water District*
*Sacramento, city of*
*Sacramento, county of*
*Sacramento Suburban Water District*
*San Juan Water District*
*Southern California Water Company*
*agricultural and self-supplied representatives*

To Interested Parties and Individuals:

The Sacramento Groundwater Authority (SGA) is pleased to release this Groundwater Management Plan (GMP), adopted December 11, 2003. The plan represents a critical step in establishing a framework for maintaining a sustainable groundwater resource for the various users overlying the basin in Sacramento County north of the American River. It includes specific goals, objectives and an action plan to provide a "road map" for coordination among the 14 overlying water purveyors.

SGA and its members are committed to the regional objectives established by the historic Sacramento Water Forum Agreement, and these objectives are incorporated into the plan. Since SGA's formation in 1998, SGA members have taken many steps to preserve the valuable groundwater resources underlying our region. These activities and specific future actions are described in the GMP.

The plan is the product of several months of effort, with valuable input from technical and policy review committees as well as the public. SGA is grateful for the excellent input, technical assistance and funding provided through partnerships with the U.S. Army Corps of Engineers and the California Department of Water Resources.

This plan represents a starting point for basin management; it is intended to be adaptive. Comments and suggestions to improve our management efforts in the basin are welcome.

Sincerely,

Edward D. Winkler
Executive Director

**RESOLUTION NO. 2003-07**

**A RESOLUTION OF THE SACRAMENTO GROUNDWATER AUTHORITY ADOPTING A GROUNDWATER MANAGEMENT PLAN AND A FINDING OF EXEMPTION FROM THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

The Board of Directors of the Sacramento Groundwater Authority (SGA) does hereby find that:

WHEREAS, the SGA was formed under the Joint Exercise of Powers Act (Chapter 5 of Division 7 of Title 1 of the California Government Code) on August 11, 1998 by the Cities of Citrus Heights, Folsom, and Sacramento, and the County of Sacramento; and

WHEREAS, the SGA was created for the purposes of protecting, preserving, and enhancing, for current and future beneficial uses, the groundwater resources in the North Area Groundwater Basin, in Sacramento County, north of the American River; and

WHEREAS, the SGA has prepared a Groundwater Management Plan for the North Area Groundwater Basin; and

WHEREAS, the Groundwater Management Plan will further ongoing efforts to protect groundwater and interdependent environmental resources in the North Area Groundwater Basin, will facilitate collection of information to further understand and evaluate additional policies and programs for protection of the groundwater resources in the North Area Groundwater Basin, and will assist in other ongoing efforts to study the feasibility of conjunctive use programs utilizing the North Area Groundwater Basin.

**NOW, THEREFORE,** be it resolved that:

1. The SGA Board hereby adopts a Groundwater Management Plan for the North Area Groundwater Basin, in Sacramento County, north of the American River, copy attached hereto as Exhibit A.

2. The SGA Board further finds that the adoption of the Groundwater Management Plan is exempt from the requirements of the California Environmental Quality Act. (CEQA Guideline §§ 15061, 15306, 15307, 15308, and 15262).

***PASSED AND ADOPTED*** by the Board of Directors of the Sacramento Groundwater Authority, on December 11, 2003.

By: Ronald Bachman
Chairperson, Sacramento Groundwater Authority

Attest: Nancy Egger
Nancy Egger, Administrative Services Manager/Clerk

**Acknowledgments**

This Groundwater Management Plan (GMP) is a direct result of the commitment that Sacramento Groundwater Authority (SGA) members made to sustain the groundwater resource for present and future uses in northern Sacramento County. SGA would like to thank the staff of Montgomery Watson Harza in preparing the critical elements of this plan. Also of great value in preparing this plan was the insight generated by public outreach studies by Lucy & Company. Preparation of this GMP was generously supported by a funding partnership with the U.S. Army Corps of Engineers. Much of the data used to generate the information in this GMP was compiled using grant funds and a funding partnership with the California Department of Water Resources. Finally, SGA would like to thank the dedication of the Policy Committee and the Technical Review Committee in guiding the preparation of this plan. The names of the committee members and alternates are listed below:

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Tom Barandas (alternate)
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Tom Gray
Lyle Hoag (alternate)
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**Technical Review Committee**

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# TABLE OF CONTENTS

**1 INTRODUCTION ..... 1**

1.1 OTHER REGIONAL MANAGEMENT EFFORTS ..... 1
*1.1.1 SMWA ..... 3*
*1.1.2 Water Forum ..... 3*
*1.1.3 Cooperating Agencies ..... 4*
*1.1.4 RWA ..... 4*
*1.1.5 Other Ongoing Groundwater Management-Related Activities within the SGA Area ..... 4*
1.2 PURPOSE OF THE SGA GMP ..... 5
1.3 AUTHORITY TO PREPARE AND IMPLEMENT A GMP ..... 5
1.4 GMP COMPONENTS ..... 5

**2 WATER RESOURCES SETTING ..... 7**

2.1 GROUNDWATER SUPPLIES ..... 7
*2.1.1 Overview of Hydrogeologic Setting ..... 7*
2.2 SURFACE WATER SUPPLIES ..... 15
*2.2.1 Water Rights/Contract Entitlements ..... 16*
*2.2.2 Surface Water Quality ..... 19*
2.3 "OTHER" SUPPLIES ..... 21
2.4 EXISTING FACILITIES AND OPERATIONS ..... 21
*2.4.1 Major Infrastructure ..... 21*
*2.4.2 Operations ..... 24*
2.5 FUTURE FACILITIES AND OPERATIONS ..... 24
2.6 EFFECTS OF WFA IMPLEMENTATION ..... 24
*2.6.1 Water Year Types ..... 24*
*2.6.2 WFA Water Supply Availability ..... 29*

**3 MANAGEMENT PLAN ELEMENTS ..... 33**

3.1 GROUNDWATER MANAGEMENT GOAL ..... 33
3.2 BASIN MANAGEMENT OBJECTIVES ..... 33
3.3 GMP COMPONENTS ..... 35
3.4 COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT ..... 35
*3.4.1 Involving the Public ..... 35*
*3.4.2 Involving Other Agencies Within and Adjacent to the SGA Area ..... 36*
*3.4.3 Utilizing Advisory Committees ..... 39*
*3.4.4 Developing Relationships with State and Federal Agencies ..... 39*
*3.4.5 Pursuing Partnership Opportunities ..... 40*
3.5 COMPONENT CATEGORY 2: MONITORING PROGRAM ..... 41
*3.5.1 Groundwater Elevation Monitoring ..... 41*
*3.5.2 Groundwater Quality Monitoring ..... 43*
*3.5.3 Land Surface Elevation Monitoring ..... 44*
*3.5.4 Surface Water Groundwater Interaction Monitoring ..... 47*
*3.5.5 Protocols for the Collection of Groundwater Data ..... 48*
*3.5.6 Data Management System ..... 48*
3.6 COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION ..... 49
*3.6.1 Well Construction Policies ..... 49*
*3.6.2 Well Abandonment and Well Destruction Policies ..... 50*
*3.6.3 Wellhead Protection Measures ..... 52*
*3.6.4 Protection of Recharge Areas ..... 53*
*3.6.5 Control of the Migration and Remediation of Contaminated Groundwater ..... 53*
*3.6.6 Control of Saline Water Intrusion ..... 55*
3.7 COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY ..... 55
*3.7.1 Conjunctive Management Activities ..... 56*

*3.7.2 Demand Reduction ..... 57*
3.8 COMPONENT CATEGORY 5: PLANNING INTEGRATION ..... 58
*3.8.1 Existing Integrated Planning Efforts ..... 59*

**4 PLAN IMPLEMENTATION ..... 61**

4.1 ANNUAL GMP IMPLEMENTATION REPORT ..... 61
4.2 FUTURE REVIEW OF GMP ..... 61
4.3 FINANCING ..... 61

**5 REFERENCES ..... 67**

**6 APPENDICES**

6.1 APPENDIX A. SGA JOINT POWERS AGREEMENT
6.2 APPENDIX B. WATER SUPPLY DATA BY SGA MEMBER AGENCY
6.3 APPENDIX C. OUTREACH AND EDUCATION
*6.3.1 Attachment A. SGA's Notices Published in the Sacramento Bee*
*6.3.2 Attachment B. "Summary of Public Outreach Plan for Groundwater Management" (Lucy & Company, 2003).*
6.4 APPENDIX D. STANDARD OPERATING PROCEDURE FOR MANUAL WATER LEVEL MEASUREMENTS
6.5 APPENDIX E. FINAL DRAFT – "RELATIONSHIP OF THE WATER FORUM AGREEMENT TO LAND USE DECISION MAKING", WATER FORUM SUCCESSOR EFFORT, JANUARY 2002
6.6 APPENDIX F. MODELING

# LIST OF TABLES

TABLE 1. LOCATION OF SGA GMP COMPONENTS ....6
TABLE 2. TREATMENT CAPACITY AT WTPS PROVIDING SURFACE WATER WITHIN THE SGA BOUNDARIES ....22
TABLE 3. GROUNDWATER WELLS WITHIN SGA BOUNDARIES ....22
TABLE 4. YEAR 2002 AND PROJECTED 2030 WATER SUPPLY SCENARIOS FOR WATER PURVEYORS WITHIN SGA BOUNDARIES ....25
TABLE 5. RWA ARBCUP – SUMMARY OF PROGRAM FACILITIES ....30
TABLE 6. SUMMARY OF GMP ACTIONS ....63

# LIST OF FIGURES

FIGURE 1. BOUNDARY OF THE SGA AND AREA COVERED BY THIS GROUNDWATER MANAGEMENT PLAN ....2
FIGURE 2. LOCATION OF NORTH AMERICAN GROUNDWATER SUBBASIN ....8
FIGURE 3. REGIONAL STRATIGRAPHIC COLUMN ....9
FIGURE 4. PRINCIPAL CONTAMINANT PLUMES ....11
FIGURE 5. SPRING 2002 GROUNDWATER ELEVATION CONTOURS ....14
FIGURE 6. LONG-TERM REPRESENTATIVE HYDROGRAPHS IN THE SGA AREA ....17
FIGURE 7. EXISTING PRINCIPAL INFRASTRUCTURE AND ADDITIONAL INFRASTRUCTURE RESULTING FROM AMERICAN RIVER BASIN REGIONAL CONJUNCTIVE USE PROGRAM ....23
FIGURE 8. USE OF GROUNDWATER AND SURFACE WATER BY PURVEYOR ....27
FIGURE 9. TOTAL ANNUAL GROUNDWATER EXTRACTION BY SGA MEMBER AGENCIES (1998 – 2002) ....29
FIGURE 10. ORGANIZATION OF MANAGEMENT PLAN ELEMENTS ....34
FIGURE 11. SGA MEMBER AGENCIES AND OTHER ADJACENT LOCAL AGENCIES ....37
FIGURE 12. INITIAL PROPOSED WELLS FOR CONSIDERATION IN SGA GROUNDWATER ELEVATION MONITORING NETWORK ....42
FIGURE 13. EXISTING AND PROPOSED WELLS IN SGA GROUNDWATER QUALITY MONITORING NETWORK ....45
FIGURE 14. DMS SCREEN CAPTURE ....51
FIGURE 15. SURFACE GEOLOGY OF THE SGA AREA – IMPLICATIONS FOR SURFACE RECHARGE RATES ....54

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| AB | Assembly Bill |
| Aerojet | Aerojet-General Corporation facility |
| AF | Acre-feet |
| AF/year | Acre-feet per year |
| AFRPA | Air Force Real Property Agency |
| ARBCUP | American River Basin Regional Conjunctive Use Program |
| ARWRI | American River Water Resources Investigation |
| BMO | Basin Management Objective |
| Cal-Am | California-American Water Company |
| CALFED | CALFED Bay-Delta Program |
| CAS | California Aquifer Susceptibility |
| cfs | Cubic feet per second |
| CHWD | Citrus Heights Water District |
| CMP | Sacramento Coordinated Water Quality Monitoring Program |
| COC | Contaminants of concern |
| Cooperating Agencies | American River Basin Cooperating Agencies |
| CSUS | California State University, Sacramento |
| CTP | Cooperative Transmission Pipeline |
| CVP | Central Valley Project |
| CVPIA | Central Valley Project Improvement Act |
| CVRWQCB | Central Valley Regional Water Quality Control Board |
| CWC | California Water Code |
| CWD | Carmichael Water District |
| DCA | 1,2-dichloroethane |
| DCE | cis-1,2-dichloroethene |
| Delta | Sacramento/San Joaquin River Delta |
| DHS | California Department of Health Services |
| DPMWD | Del Paso Manor Water District |
| DMS | Data Management System |
| DWR | California Department of Water Resources |
| DWSAP Program | Drinking Water Source Assessment and Protection Program |
| EMD | Sacramento County Environmental Management Department |
| EWA | Environmental Water Account |
| Folsom | City of Folsom |
| FOWD | Fair Oaks Water District |
| GMP | Groundwater Management Plan |
| gpm | Gallons per minute |
| Groundwater Forum | Central Sacramento County Groundwater Forum |
| IGSM | North American River and Sacramento County Combined Integrated Groundwater and Surface Water Model |
| InSAR | Interferometric Synthetic Aperture Radar |
| ISI | Integrated Storage Investigation |
| JPA | Joint Powers Authority |
| Lincoln | City of Lincoln |
| LSCE | Luhdorff & Scalmanini Consulting Engineers |

| | |
|---|---|
| LUST | Leaking Underground Storage Tank |
| M&I | Municipal and industrial |
| Mather AFB | Mather Air Force Base |
| McClellan AFB | McClellan Air Force Base |
| MCL | Maximum Contaminant Level |
| MWH | Montgomery Watson Harza |
| µg/L | micrograms per liter |
| µmhos/cm | micromhos per centimeter |
| mg/L | Millgrams per liter |
| mgd | Million gallons per day |
| msl | Mean sea level |
| NAWQA | National Water Quality Assessment |
| NCMWC | Natomas Central Mutual Water Company |
| NGS | National Geodetic Survey |
| NTP | Northridge Transmission Pipeline |
| OVWC | Orange Vale Water Company |
| PBE | Physical Barrier Effectiveness |
| PCAs | Potential Contaminating Activities |
| PCE | Tetrachloroethene |
| PCWA | Placer County Water Agency |
| PL | Public Law |
| POU | Place of Use |
| Reclamation | U.S. Bureau of Reclamation |
| RLECWD | Rio Linda/Elverta Community Water District |
| Roseville | City of Roseville |
| RWA | Regional Water Authority |
| RWMP | Regional Water Master Plan |
| Sac Regional | Sacramento Regional Wastewater Treatment Plant |
| Sac Suburban | Sacramento Suburban Water District |
| SACOG | Sacramento Area Council of Governments |
| Sacramento | City of Sacramento |
| SAFCA | Sacramento Area Flood Control Agency |
| SCWA | Sacramento County Water Agency |
| SCWC | Southern California Water Company |
| SGA | Sacramento Groundwater Authority |
| SJWD | San Juan Water District |
| SMWA | Sacramento Metropolitan Water Authority |
| SOP | Standard Operating Procedure |
| South Sutter | South Sutter Water District |
| SRCSD | Sacramento Regional County Sanitation District |
| SWRCB | State Water Resources Control Board |
| TCE | Trichloroethene |
| TDS | Total dissolved solids |
| USACE | U.S. Army Corps of Engineers |
| USEPA | U.S. Environmental Protection Agency |
| USGS | U.S. Geological Survey |
| Water Forum | Sacramento Area Water Forum |
| WEP | Water Efficiency Program |

| | |
|---|---|
| WFA | Water Forum Agreement |
| WTP | Water treatment plant |

# 1 INTRODUCTION

The Sacramento Groundwater Authority (SGA) is a joint powers authority (JPA) created to manage the Sacramento region's North Area Groundwater Basin. The SGA's formation in 1998[1] resulted from a coordinated effort by the Sacramento Metropolitan Water Authority (SMWA) and the Sacramento Area Water Forum (Water Forum) to establish an appropriate management entity for the basin. The SGA is recognized as one of the essential tools to implement a comprehensive program to preserve the lower American River and ensure a reliable water supply through the year 2030.

The SGA draws its authority from a joint powers agreement[2] signed by the cities of Citrus Heights, Folsom, and Sacramento and the County of Sacramento to exercise their common police powers to manage the underlying groundwater basin. The agreement is included as **Appendix A** in this document. In turn, these agencies chose to manage the basin in a cooperative fashion by allowing representatives of the 14 local water purveyors and a representative from each agricultural and self-supplied pumpers to serve as the Board of Directors of the SGA[3].

At the core of the SGA's management responsibility is a commitment to not exceed the average annual sustainable yield of the basin, which was estimated to be 131,000 acre-feet[4] in the Water Forum Agreement (WFA)[5]. To accomplish this objective and to provide a safe, reliable water supply for the rapidly growing northern Sacramento County, this groundwater management plan (GMP) is necessary to begin to identify the many actions that should be taken in the North Area Groundwater Basin. This GMP represents a starting point from which the SGA will continually assess the status of the groundwater basin and make appropriate management decisions to ensure a sustainable resource. The SGA's boundary as well as the area covered by this GMP include only the portion of Sacramento County north of the American River (**Figure 1**). Continuing effort will be made to coordinate SGA's GMP activities with adjacent areas.

## 1.1 OTHER REGIONAL MANAGEMENT EFFORTS

Over the past several decades, the water supplies of the region have been impacted by:

- Prolonged drought and prolonged wet periods.
- Increasing pressure to dedicate surface water for environmental purposes.
- Declining groundwater levels.
- Impacts and growing threats to surface water quality and groundwater quality.

---

1 The SGA was originally formed in 1998 as the Sacramento North Area Groundwater Management Authority. In 2002, it was renamed the Sacramento Groundwater Authority.

2 The agreement is included in this report as **Appendix A**.

3 SGA Board members include representatives of California-American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Sacramento, County of Sacramento, Del Paso Manor Water District, Fair Oaks Water District, Natomas Central Mutual Water Company, Orange Vale Water Company, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, Southern California Water Company, and individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts).

4 This value was estimated based on water use and facilities in the basin at the time of the WFA. This value was based on a number of assumptions, and was not intended to be a fixed value that could not be modified as conditions and assumptions changed in the basin. Examples of changed conditions include new or improved water conveyance, treatment, and storage facilities or changes in water supply contracts.

5 The WFA is available online at http://www.waterforum.org or contact the Water Forum office at (916) 264-1999.

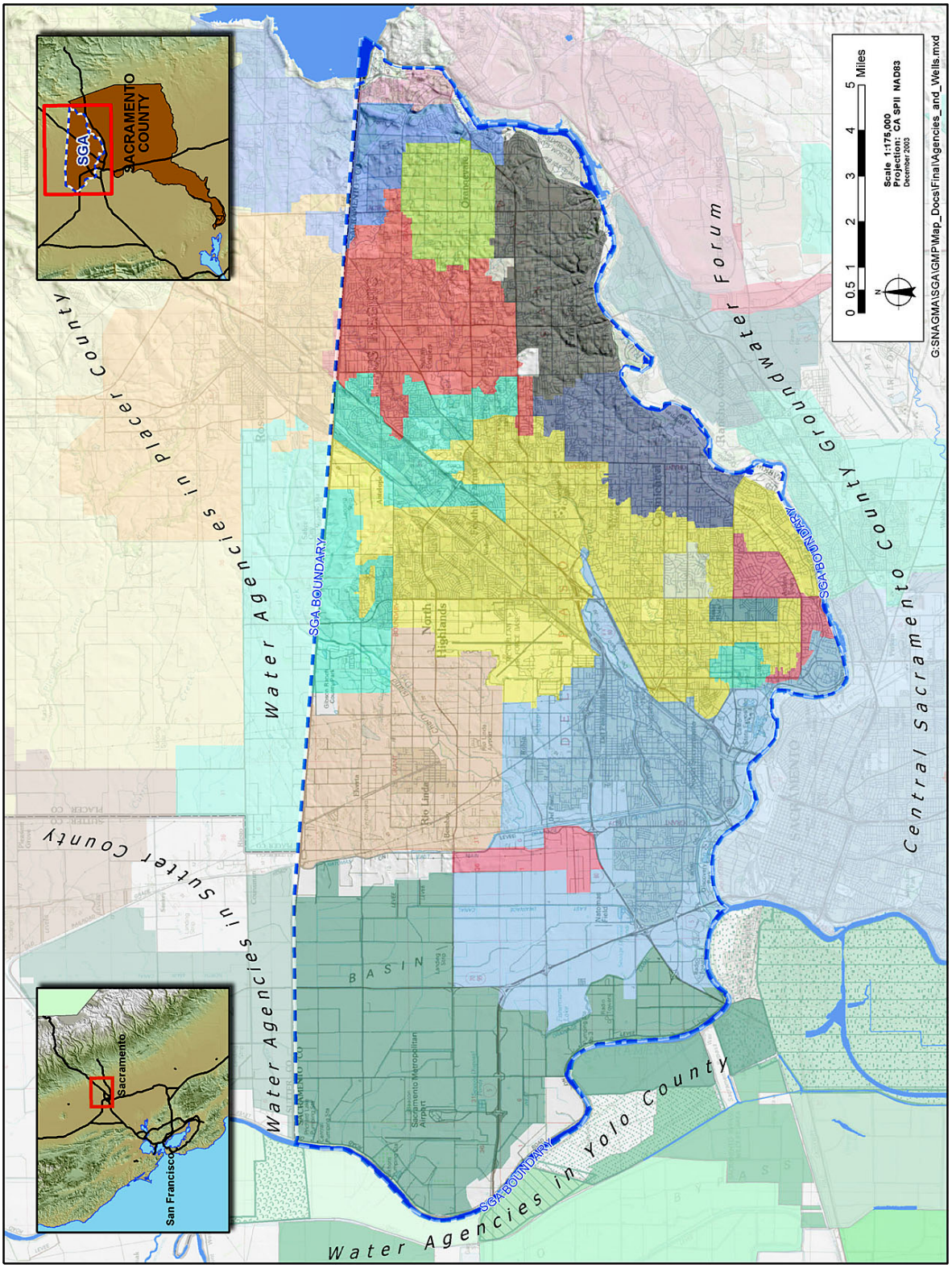



**Figure 1. Boundary of the SGA and Area Covered by this Groundwater Management Plan**

All the while, demand for water in the region has continued to grow.

To address these problems, water purveyors in the region have invested substantial time and resources in a progression of regional planning efforts. In particular, the planning efforts most directly related to the SGA's efforts include:

- The SMWA.
- The Water Forum process.
- The American River Basin Cooperating Agencies Regional Water Master Plan (Cooperating Agencies RWMP).
- The Regional Water Authority (RWA), successor to the SMWA.

Each of these regional planning efforts is discussed further below.

### 1.1.1 SMWA

Formed in 1990, the SMWA was a combined JPA and non-profit public benefit association of 17 public water suppliers within Sacramento County[6]. A primary objective of the SMWA was to facilitate actions needed to restore and maintain the quantity and the quality of the groundwater in the area. In support of that objective, the SMWA was a vital participant in the development of the WFA (see below). The SMWA also developed and adopted a GMP as authorized by Assembly Bill (AB) 3030 of 1992 (commonly referred to as AB 3030 Plans, see the California Water Code (CWC) § 10750 *et seq.*), but the plan was not fully implemented. In 2001, the SMWA was superceded by the RWA (see description below).

### 1.1.2 Water Forum

Begun in 1993, the Water Forum is a group comprised of business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments in the Sacramento Region that joined together to fulfill two co-equal objectives:

- To provide a reliable and safe water supply for the region's economic health and planned development through the year 2030.
- To preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

In 2000, Water Forum members approved the WFA, which consists of seven integrated actions necessary to accomplish these objectives. The WFA prescribes a local conjunctive use program for Folsom Reservoir, the lower American River, and the adjacent groundwater basin. One of the seven elements is groundwater management. This element divides Sacramento County groundwater basins into three subunits, the North, Central, and South areas, and recommends that the SGA (then known as the Sacramento North Area Groundwater Management Authority) serve as the governing body for the North Area Groundwater Basin. The groundwater element also estimated and recommended an average annual sustainable groundwater yield for the SGA

[6] The SMWA members were located both north and south of the American River and included (note that some purveyor names have been changed and/or undergone consolidation since the formation of the SMWA): City of Folsom, City of Galt, Arden Cordova Water Service Company, Arcade Water District, Carmichael Water District, Citrus Heights Water District, Clay Water District, Del Paso Manor Water District, Elk Grove Water Works, Fair Oaks Water District, Galt Irrigation District, Northridge Water District, Omochumne-Hartnell Water District, Orange Vale Water Company, Rancho Murieta Community Services District, Rio Linda/Elverta Community Water District, and San Juan Water District.

area of 131,000 acre-feet per year (AF/year) (roughly equivalent to the 1990 groundwater pumping rate within the North Area Groundwater Basin). The Water Forum continues to function with a dedicated staff in the Water Forum Successor Effort program to coordinate with other agencies and groups, such as the SGA, to ensure that the elements of the WFA are carried out.

### 1.1.3 Cooperating Agencies

The Cooperating Agencies are an ad-hoc group of local water purveyors in northern Sacramento County and southern Placer County[7]. Each of the Cooperating Agencies is a signatory of the WFA. The Cooperating Agencies were formed to complete a RWMP, the objective of which is to identify the facilities and operational agreements necessary to implement the WFA for the northern Sacramento/Placer area. This plan will result in identifying opportunities to improve the availability of water supplies through additional conjunctive use of surface water and groundwater in the region. These expanded conjunctive use opportunities are a key component to assuring a sustainable groundwater resource within the SGA's area. Upon completion of the RWMP, the Cooperating Agencies have sunset as an organization with much of their function assumed by the RWA.

### 1.1.4 RWA

The RWA succeeded the SMWA in 2001 through a JPA to serve and represent the regional water supply interests, and assist members in protecting and enhancing the reliability, availability, affordability, and quality of water resources. One of the principal missions of the RWA is facilitating implementation of the conjunctive use program prescribed by the WFA and the RWMP. The RWA currently has eighteen members and three associate members[8] including each of the Cooperating Agencies except the Sacramento County Water Agency (SCWA). Nearly all members are signatory to the WFA.

As with the Cooperating Agencies, the success of implementing additional conjunctive use opportunities will be an important factor in the SGA's ability to ensure a reliable groundwater supply within its area. The activities of the RWA and SGA are highly coordinated as they share a common office and staff.

### 1.1.5 Other Ongoing Groundwater Management-Related Activities within the SGA Area

In addition to the on-going programs by individual SGA members, there are several other on-going groundwater-related activities within the SGA area. Coordination between these efforts

[7] The "Cooperating Agencies" include water purveyors in both Sacramento County and Placer County: California-American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Roseville, City of Sacramento, Del Paso Manor Water District, Fair Oaks Water District, Placer County Water Agency, Rio Linda/Elverta Community Water District, Sacramento County Water Agency, Sacramento Suburban Water District, and San Juan Water District.

[8] The membership of the RWA encompasses water users in both Sacramento County and Placer County including: California-American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Lincoln, City of Roseville, City of Sacramento, Del Paso Manor Water District, El Dorado Irrigation District, Fair Oaks Water District, Fruitridge Vista Water Company, Orange Vale Water Company, Placer County Water Agency, Rancho Murieta Community Services District, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, and the Southern California Water Company. Associate members do not directly retail drinking water and do not vote in RWA matters. Associate members include: El Dorado County Water Agency, Sacramento Municipal Utility District, and Sacramento Regional County Sanitation District.

and the SGA will be discussed in more detail later in this GMP. The activities closely related to the SGA's groundwater management efforts include, but are not limited to, the following:

- Groundwater contamination investigation and remediation activities at the former McClellan Air Force Base (McClellan AFB).
- Groundwater contamination investigation and remediation activities at the Aerojet-General Corporation facility (Aerojet).
- Monitoring of groundwater levels and quality by the California Department of Water Resources (DWR).
- Monitoring of groundwater levels and quality at California State University, Sacramento (CSUS).
- Monitoring of groundwater quality by the U.S. Geological Survey (USGS) as part of its National Water Quality Assessment (NAWQA) Program.
- Monitoring of site investigations and remediation efforts at known leaking underground storage tanks (LUSTs) coordinated by the Central Valley Regional Water Quality Control Board (CVRWQCB).
- In the mid-1990s, DWR conducted a study on the feasibility of conjunctive use in northwest Sacramento County and western Placer County (DWR, 1997). Natomas Central Mutual Water Company (NCMWC), an SGA member, was a cooperating agency to the study. Two multi-depth monitoring wells were constructed in the northwest Sacramento County as a result of the study and are currently monitored by DWR.

## 1.2 PURPOSE OF THE SGA GMP

The groundwater management goal of the SGA is to maintain a sustainable, high-quality groundwater resource for the users of groundwater basin underlying Sacramento County north of the American River consistent with the objectives of the WFA. To meet that goal, the purpose of this GMP is to serve as the initial framework for coordinating the many independent management activities into a cohesive set of management objectives and related actions necessary to meet those objectives.

## 1.3 AUTHORITY TO PREPARE AND IMPLEMENT A GMP

The authority of the SGA to manage the North Area Groundwater Basin is provided through the joint powers agreement. The SGA Board of Directors elected to prepare this GMP as one of the tools necessary to effectively manage the basin. The SGA is preparing this GMP consistent with the provisions of CWC § 10750 *et seq.* as amended January 1, 2003.

## 1.4 GMP COMPONENTS

The SGA GMP includes the following required and recommended components:

- CWC § 10750 *et seq.* (seven mandatory components). Recent amendments to the CWC § 10750 *et seq.* require GMPs to include several components to be eligible for the award of funds administered by DWR for the construction of groundwater projects or groundwater quality projects[9].
- DWR Bulletin 118 (2003) components (seven recommended components).

[9] These amendments to the CWC were included in Senate Bill 1938, effective January 1, 2003.

- CWC § 10750 *et seq.* (12 voluntary components). CWC § 10750 *et seq.* includes 12 specific technical issues that could be addressed in GMPs to manage the basin optimally and protect against adverse conditions.

**Table 1** lists the section(s) in which each component is addressed.

**Table 1. Location of SGA GMP Components**

| Description | Section(s) |
|---|---|
| **A. CWC § 10750 *et seq.*, Mandatory Components** | |
| 1. Documentation of public involvement statement. | 3.4.1, 6.3 |
| 2. Basin Management Objectives (BMOs). | 3.2 |
| 3. Monitoring and management of groundwater elevations, groundwater quality, inelastic land surface subsidence, and changes in surface water flows and quality that directly affect groundwater levels or quality or are caused by pumping. | 3.5 |
| 4. Plan to involve other agencies located within groundwater basin. | 3.4.2 |
| 5. Adoption of monitoring protocols by basin stakeholders. | 3.5, 6.4 |
| 6. Map of groundwater basin showing area of agency subject to GMP, other local agency boundaries, and groundwater basin boundary as defined in DWR Bulletin 118. | **Figure 2** |
| 7. For agencies not overlying groundwater basins, prepare GMP using appropriate geologic and hydrogeologic principles. | N/A |
| **B. DWR's Suggested Components** | |
| 1. Manage with guidance of advisory committee. | 3.4.3 |
| 2. Describe area to be managed under GMP. | 2.1 – 2.5 |
| 3. Create link between BMOs and goals and actions of GMP. | **Figure 10** |
| 4. Describe GMP monitoring program. | 3.5, **Figure 12, Figure 13** |
| 5. Describe integrated water management planning efforts. | 3.8 |
| 6. Report on implementation of GMP. | 4.1 |
| 7. Evaluate GMP periodically. | 4.2 |
| **C. CWC § 10750 *et seq.*, Voluntary Components** | |
| 1. Control of saline water intrusion. | 3.6.6 |
| 2. Identification and management of wellhead protection areas and recharge areas. | 3.6.3, 3.6.4 |
| 3. Regulation of the migration of contaminated groundwater. | 3.6.5 |
| 4. Administration of well abandonment and well destruction program. | 3.6.2 |
| 5. Mitigation of conditions of overdraft. | 3.7 |
| 6. Replenishment of groundwater extracted by water producers. | 3.7 |
| 7. Monitoring of groundwater levels and storage. | 3.5 |
| 8. Facilitating conjunctive use operations. | 3.7 |
| 9. Identification of well construction policies. | 3.6.1 |
| 10. Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects. | 3.6.5, 3.7 |
| 11. Development of relationships with state and federal regulatory agencies. | 3.4.4 |
| 12. Review of land use plans and coordination with land use planning agencies to assess activities that create reasonable risk of groundwater contamination. | 3.8.1, 6.5 |

# 2 WATER RESOURCES SETTING

Locations of water purveyors within the SGA boundaries are shown in **Figure 1**. Within the SGA boundaries, water purveyors currently utilize both surface water and groundwater. Some rely exclusively on either groundwater or surface water to meet their needs; others use a combination of surface water and groundwater. The groundwater and surface water supplies available to the region are summarized below.

## 2.1 GROUNDWATER SUPPLIES

This section provides a regional description of the geologic and hydrogeologic conditions of the underlying groundwater basin. A map showing the area of the groundwater basin, as defined by DWR Bulletin 118 (2003), and the SGA boundaries within this basin is presented in **Figure 2**.

The North American Subbasin is defined by DWR as the area bounded on the west by the Feather and Sacramento rivers, on the north by the Bear River, on the south by the American River, and on the east by the Sierra Nevada (DWR, 2003). DWR Bulletin 118 (2003) provides additional information about the North American Subbasin on the agency's Web site[10] including:

- Surface Area: 548 square miles.
- The eastern basin boundary is a north-south line extending from the Bear River south to Folsom Reservoir. This represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada.
- The western portion of the subbasin consists of nearly flat flood basin deposits from the Bear, Feather, Sacramento and American rivers, and several small east side tributaries

The SGA area is located in the southern portion of the North American Subbasin extending as far north as the Sacramento-Placer County line. Regional and grouped data are provided in this section; water purveyor-specific data are presented in **Appendix B.**

### 2.1.1 Overview of Hydrogeologic Setting

The groundwater resources of Sacramento County have been extensively investigated and reported in the DWR Bulletin 118-3, Evaluation of Ground Water Resources: Sacramento County (July, 1974).

#### *2.1.1.1 Hydrostratigraphy of SGA Area*

DWR Bulletin 118-3 identifies and describes the various geologic formations that constitute the water-bearing deposits underlying Sacramento County. These formations include an upper, unconfined aquifer system consisting of the Victor, Fair Oaks, and Laguna Formations, and a lower, semi-confined aquifer system consisting primarily of the Mehrten Formation. These formations are shown on **Figure 3** and are typically composed of lenses of inter-bedded sand, silt, and clay, interlaced with coarse-grained stream channel deposits. **Figure 3** illustrates that these deposits form a wedge that generally thickens from east to west to a maximum thickness of about 2,000 feet under the Sacramento River.

[10] At: http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/5-21.64_North_American.pdf.

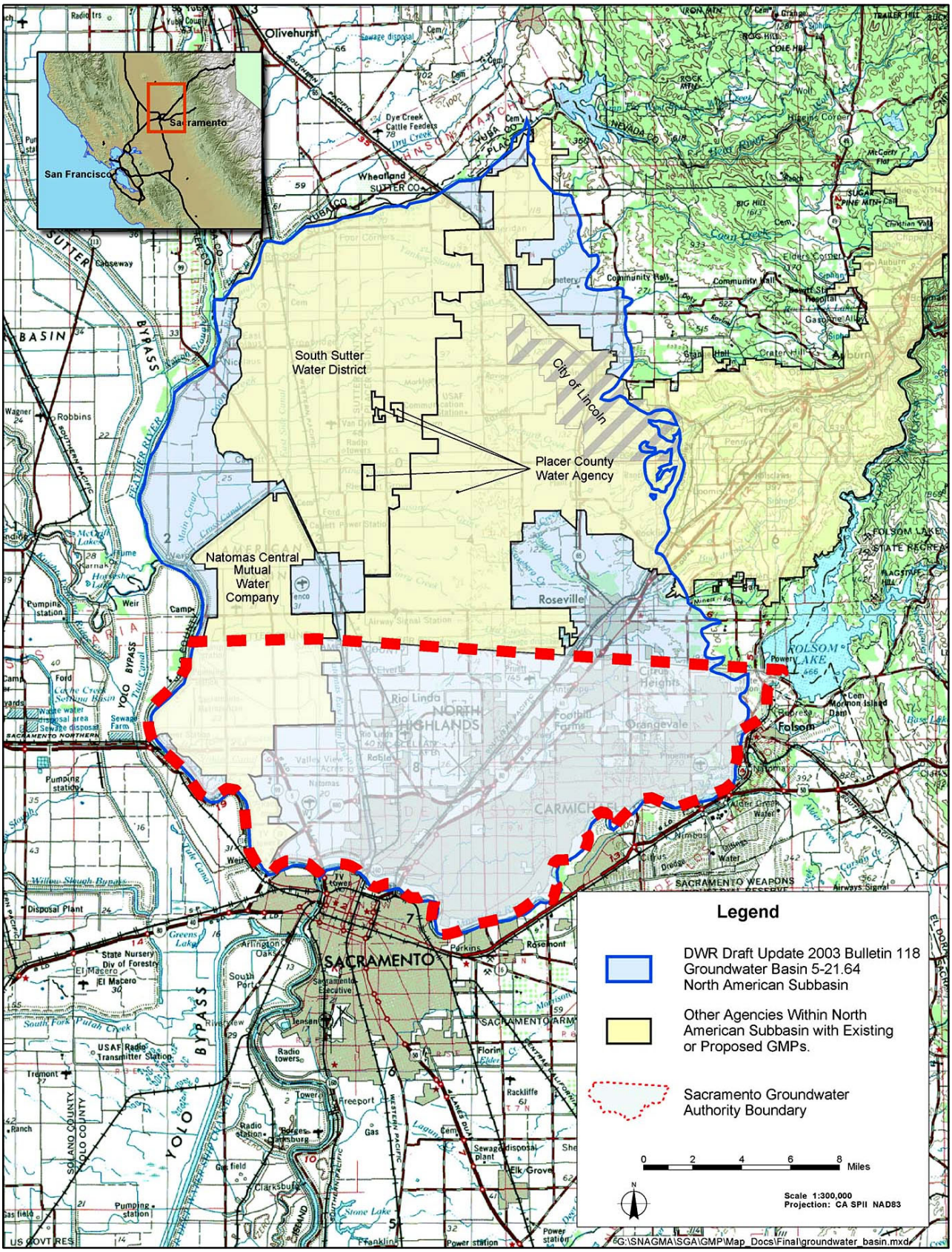



**Figure 2. Location of North American Groundwater Subbasin**

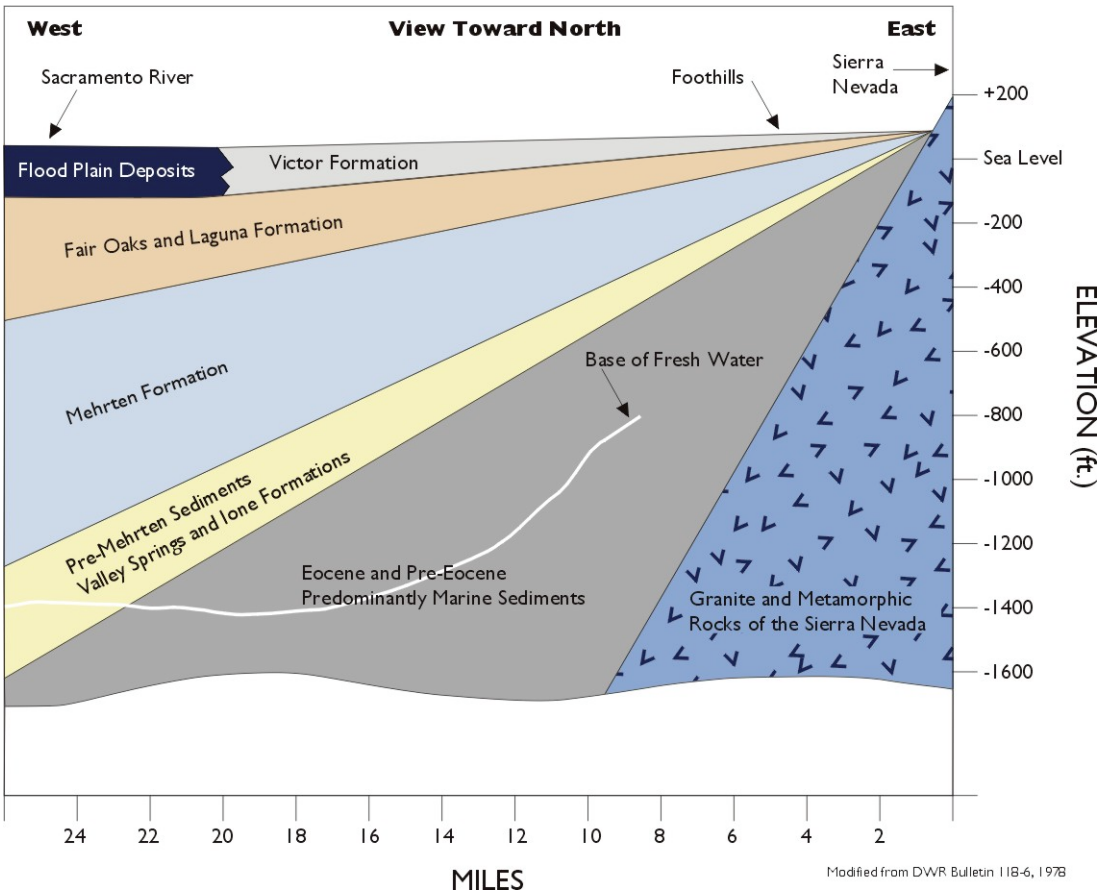



**Figure 3. Regional Stratigraphic Column**

Groundwater occurs in unconfined to semi-confined states throughout the North American Subbasin. Semi-confined conditions occur in localized areas; the degree of confinement typically increases with depth below the ground surface. Groundwater in the Victor, Fair Oaks, and Laguna Formations (upper aquifer) is typically unconfined. However, due to the heterogeneous nature of the alluvial depositional system, semi-confined conditions can be encountered at shallow depths in the aquifer. The deeper Mehrten Formation (lower aquifer) typically exhibits semi-confined conditions. There are no regionally-extensive fine grained layers in the subsurface to create a regionally confined aquifer such as is observed in the San Joaquin Valley from the Corcoran Clay layer.

#### *2.1.1.2 Groundwater Quality*

The water quality in the upper aquifer system is regarded as superior to that of the lower aquifer system. The upper aquifer is preferred over the lower aquifer principally because the lower aquifer system (specifically the Mehrten formation) contains higher concentrations of iron and manganese. Water from the upper aquifer generally does not require treatment (other than disinfection). The lower aquifer system also has higher concentrations of total dissolved solids (TDS, a measure of salinity) than the upper aquifer, although it typically meets standards as a potable water supply. In general, at depths of approximately 1,200 feet or greater (actual depth varies throughout the basin), the TDS concentration exceeds 2,000 milligrams per liter (mg/L). At such concentrations, the groundwater is considered non-potable without treatment.

***Background Water Quality.*** This description of background water quality is based on data used to populate the Data Management System (DMS). Available groundwater quality data from monitoring between 1991 and 2002 for 260 wells were used to populate the DMS. The DMS was used to query data and develop statistics and graphics for the constituents included in this evaluation. Evaluations were performed for constituents of primary concern related to aesthetics, regulatory impacts, and contaminant plumes, and constituents of future concern related to aesthetics and regulatory concerns.

***Total Dissolved Solids.*** TDS results in most wells are within the secondary drinking water standard; therefore, TDS will not limit the potable use of groundwater by the overlying agencies. The TDS levels vary quite significantly throughout the SGA portion of the basin, ranging from 34 to 657 mg/L, although most wells have levels between 140 and 320 mg/L.

***Iron and Manganese.*** Iron and manganese results for most wells are within the secondary drinking water standards; therefore, iron and manganese will not limit the potable use of groundwater by the overlying agencies. Iron can range from non-detect, less than 10 micrograms per liter (μg/L), to very high levels such as 16,000 μg/L, although most wells have average values less than 200 μg/L. Manganese concentrations range from non-detectable, less than 2 μg/L, to 1,700 μg/L, although most wells have average values less than 50 μg/L.

***Arsenic and Chromium.*** Arsenic and chromium results for most wells are within the current primary drinking water standards; therefore, arsenic and chromium will not limit the potable use of groundwater by the overlying agencies. Currently, there is a primary federal Maximum Contaminant Level (MCL) for arsenic of 10 μg/L, however compliance is not yet required in California below 50 μg/L. Arsenic concentrations range from non-detectable, less than 1 μg/L, to 22 μg/L, although most wells have average values less than 5 μg/L.

Currently, total chromium has a primary MCL of 50 μg/L. Chromium concentrations range from non-detectable, less than 1 μg/L, to 52 μg/L, although most wells range between 8 and 12 μg/L.

***Nitrate.*** It appears that all wells are within the current primary nitrate drinking water standard and nitrate will not limit the potable use of groundwater by the overlying agencies. Currently, nitrate has a primary MCL of 45 mg/L. Most SGA wells have low levels (< 15 μg/L) of nitrate.

***Known "Principal" Plumes.*** Principal groundwater contaminant plumes within or near the SGA area are known to exist from source areas at the former McClellan AFB, the former Mather Air Force Base (Mather AFB), and Aerojet and are shown on **Figure 4**. During Phase II development of the DMS, contaminant plume data were collected by SGA from the following documents:

- URS. Former McClellan Air Force Base, Installation Restoration Program, Groundwater Monitoring Program: Quarterly Report, Third Quarter 2002. January 2003.
- Montgomery Watson Harza (MWH). Mather Air Force Base Annual and Fourth Quarter 2002 Sitewide Groundwater Monitoring Report. March 2003.
- Aerojet Environmental Remediation. Aerojet Sacramento Site, American River Study Area Groundwater Monitoring Results, April – June 2002. August 2002.

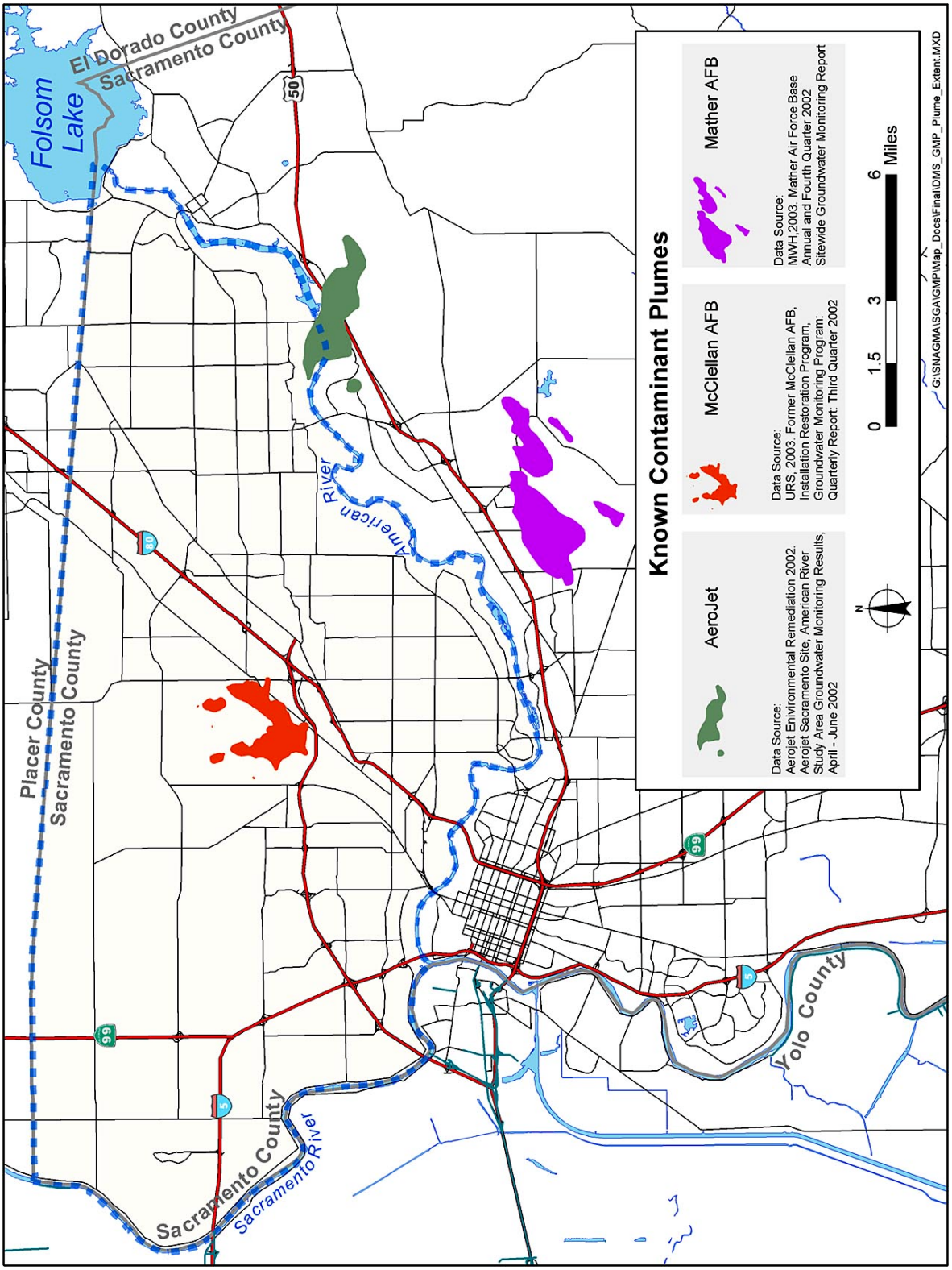



**Figure 4. Principal Contaminant Plumes**

Although other localized plumes exist within the SGA area, the principal plumes shown in **Figure 4** are the largest and have the greatest current impact on existing groundwater use. For the McClellan AFB plumes, the primary contaminants of concern (COC) are trichloroethene (TCE), tetrachloroethene (PCE), cis-1,2-dichloroethene (DCE), and 1,2-dichloroethane (DCA). The McClellan AFB plume edges represent the California drinking water MCL of 5 μg/L TCE, the most extensive contaminant.

For the Mather AFB plumes, the primary COCs are TCE, PCE, and carbon tetrachloride. The Mather AFB plume edges represent a composite COC concentration of 0.5 μg/L, which is one-tenth of the MCL for these constituents.

For the Aerojet plume, the primary COCs are TCE and perchlorate. The Aerojet plume edges represent a concentration of 5 μg/L TCE, the most extensive contaminant.

There are currently about 190 active LUST sites within the SGA area (source: http://geotracker.swrcb.ca.gov). While many sites can be fully remediated, the aggregate impact from undetected contamination on groundwater quality in the basin cannot be determined at this time and may ultimately be considerable.

#### *2.1.1.3 Recharge and Extraction of Groundwater in Sacramento County*

Evaluating changes in aquifer conditions requires understanding the dynamic processes and interactions taking place as extractions and recharge in the aquifer occur. Conceptual models of the aquifer that describe induced recharge, aquifer storage, and differences between localized and regional effects on the aquifer are discussed below. These conceptual models are meant to clarify concepts; not all aspects of groundwater hydraulics are described. Some of the concepts presented pertain only to the northern Sacramento County aquifers.

***Recharge.*** Groundwater in northern Sacramento County moves from sources of recharge to areas of discharge. Recharge to the local aquifer system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly in American River and Sacramento River channels. Prior to development of the area, additional recharge would have occurred along the eastern boundary of the SGA area at the transition point from consolidated rocks of the Sierra Nevada to the alluvial deposited basin sediments. Other sources of recharge within the area include inflow of groundwater generally from the northeast; subsurface recharge from fractured geologic formations to the east; and deep percolation from applied surface water, precipitation, and small streams. An example of recharge from deep percolation can be seen in the western SGA area where extensive agricultural operations in NCMWC have redistributed surface water from the Sacramento River over a much broader area. Some of the water not used by the crops grown in the area will eventually act as a source of recharge to the groundwater basin.

Changes in the groundwater surface elevation result from changes in groundwater recharge, discharge, or extraction. In some instances within northern Sacramento County, this change in groundwater elevation can induce natural recharge at locations where rivers or streams and the aquifer are hydraulically connected. To the extent that a hydraulic connection exists, as groundwater conditions change, the slope or gradient of the groundwater surface may change as well. A steeper gradient away from the stream would induce higher recharge from surface water into the aquifer.

The rate of recharge from streams that are hydraulically disconnected from the groundwater surface is indifferent to changes in groundwater elevations or gradient. This is typically true with smaller streams where the groundwater surface is located far below the streambed. In such cases, surface water percolates through the unsaturated zone to the groundwater and is a function of the aquifer materials underlying the streambed and the water level in the surface stream. The rate of infiltration under these conditions is not controlled by the change in elevation of the underlying groundwater. There is also some evidence to suggest these conditions exist along the Sacramento River in northern Sacramento County.

***Localized Impacts of Groundwater Extraction.*** When extractions occur from a single well, a concentrated localized cone of depression is formed around the well. The shape and depth of the localized cone of depression depend on several factors including (but not limited to): (1) the rate of extraction, (2) the presence of nearby sources of recharge and extraction, (3) aquifer transmissivity, and (4) the "confined" or "unconfined" state of the aquifer, (i.e., storage coefficient). Over a period of time, extraction from an unconfined aquifer can de-water the aquifer around the well. However, when extraction ceases, the water level within the aquifer typically rebounds to its pre-extraction condition.

A confined or semi-confined aquifer behaves differently since the water is under pressure from a recharge source. Instead of de-watering the aquifer, a change in confining pressure occurs as a result of extractions; the aquifer remains saturated. In a confined aquifer, the pressure or piezometric surface elevation decline is more dramatic than in an unconfined aquifer; however, the recovery to pre-extraction conditions is typically much faster.

***Regional Impacts of Groundwater Extraction.*** Large regional cones of depression can form in areas where multiple groundwater extraction wells are in operation. The location and shape of a regional cone of depression is influenced by the same factors as a single well. The regional cone of depression within the SGA area is shown on **Figure 5,** a water elevation contour map for spring of 2002. This map was prepared using water elevation data from DWR's water data library available on-line at: http://wdl.water.ca.gov. The Inverse Distance to a Power gridding method was used to contour the water elevation data posted on **Figure 5**. This contouring method is a weighted average interpolator and is best used when there is a uniform distribution of data. With Inverse Distance to a Power, data are weighted during interpolation such that the influence of one point relative to another declines with distance from the grid node. Normally, Inverse Distance to a Power behaves as an exact interpolator. When calculating a grid node, the weights assigned to the data points are fractions, and the sum of all the weights are equal to 1.0.

Fluctuations in regional cones of depression are measured over years and result from: (1) changes in recharge, and (2) changes in extractions from increasing and decreasing water demands. A sequence of successive dry years can decrease the amount of natural recharge to the aquifer and often a coinciding increase in groundwater extraction, creating an imbalance between natural recharge and extractions. Consequently, groundwater elevations decrease in response to this imbalance between recharge and extraction. Over time, the shape and location of the aquifer's regional cone of depression fluctuates.

Intensive use of the groundwater basin has resulted in a general lowering of groundwater elevations near the center of the basin away from the sources of recharge. As early as 1968, pumping depressions were evident in northern Sacramento County. These depressions have grown and coalesced into a single cone of depression centered in the SGA area as shown in **Figure 5**.

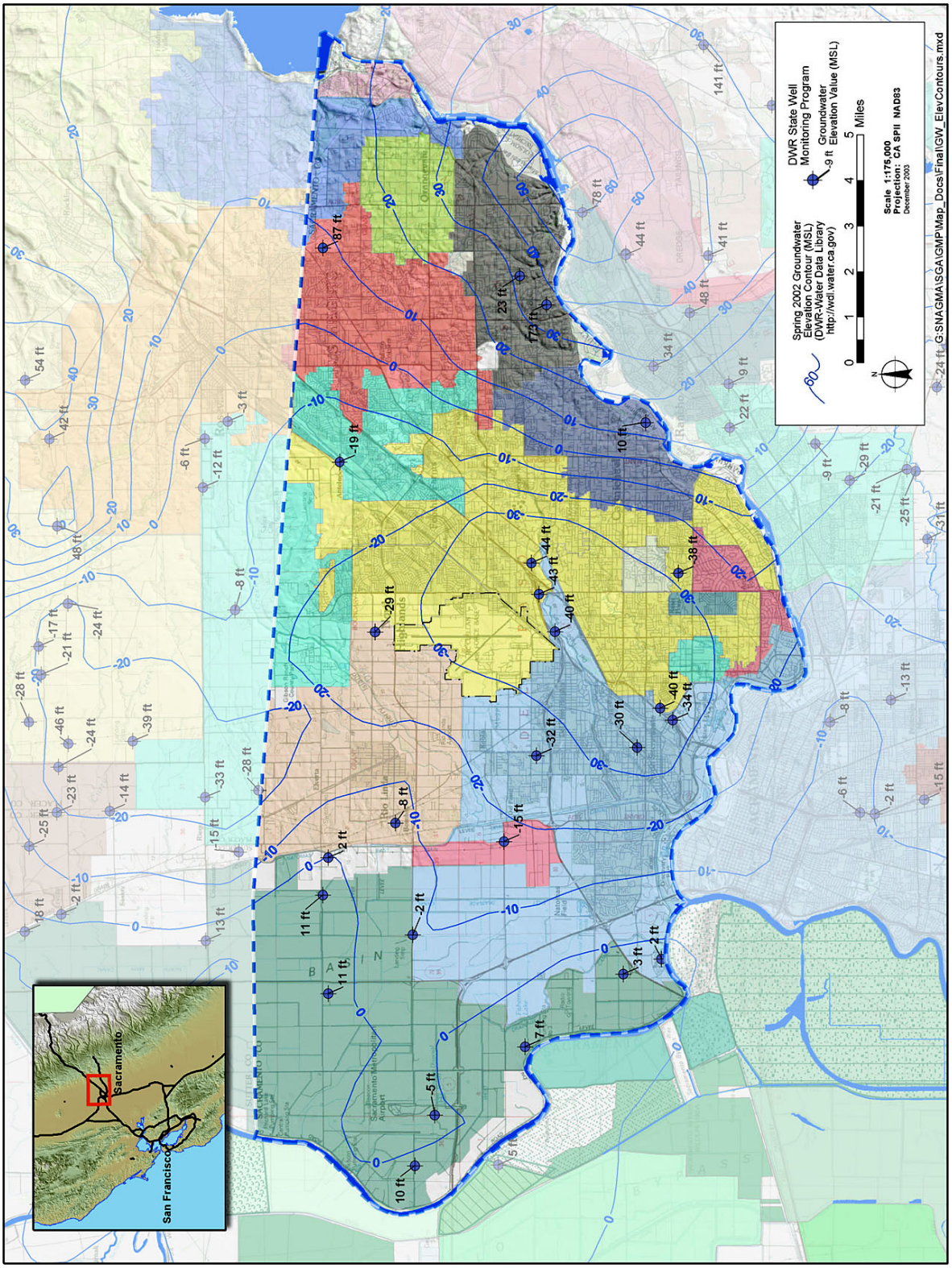



**Figure 5. Spring 2002 Groundwater Elevation Contours**

***Groundwater Level Trends.*** To observe characteristic trends in groundwater elevation, selected well hydrographs have been prepared and are presented on **Figure 6.** For the purpose of this discussion, the SGA area has been divided into four sub-areas.

***Western Area.*** The western portion of the SGA area is bounded by the Sacramento River and is relatively undeveloped compared to the rest of the SGA area. Groundwater level trends in this area can be seen in hydrographs from SWP-216 (located near the Sacramento River), and SWP-216 (also located near the Sacramento River) shown on **Figure 6**. The hydrographs for these wells show groundwater levels varying between -5 and 20 feet above mean sea level (msl) between wells. Long-term trends of increasing or decreasing groundwater levels are not evident in these wells, however, groundwater levels do fluctuate seasonally in each well.

***North-Central Area.*** The north-central portion of the SGA area is bounded by the county line on the north. Water in the north-central portion of the SGA area is supplied entirely by groundwater sources. Furthermore, pumping of groundwater occurs at treatment extraction wells being operated at McClellan AFB, which is located in the center of this region of the SGA area. The general trend in this area is steeply declining groundwater levels until the early 1990s and then stabilized levels. For example, SWP-276 (**Figure 6**) shows a decline of about 17 feet per decade from 1950 to 1990 and then stabilization of groundwater elevation at approximately 40 feet below msl to the end of the record in 1996. Water level trends in SWP-270 show the same decline from 1955 to 1990 followed by stabilized levels (with seasonal fluctuation) at 40 feet below msl from 1990 to the present.

***South-Central Area.*** The south-central portion of the SGA area is bordered to the south by the American River and is supplied by approximately even proportions of surface water and groundwater. The general trend in this area is gently to moderately declining groundwater levels over time **(Figure 6)**. Water level trends in this area can be seen in hydrographs from wells SWP-220 (located south of McClellan AFB away from the American River), SWP-232 (located near the river), and SWP-240 (located near the river). The hydrograph SWP-232 shows approximately 20 feet of groundwater elevation decrease over a 34-year period ending 2002.

***Eastern Area.*** Foothills bound the eastern portion of the SGA area. The eastern portion of the SGA area has experienced rapid residential growth in recent years and extends into the Sierra Nevada foothills. The water supply in this area is approximately 80 percent from surface water sources and 20 percent from groundwater sources. The general trend in this area is stable groundwater elevations near the American River and high elevations in the foothills, with declining groundwater levels away from the river and foothills. Water level trends in this area can be seen in hydrographs from wells SWP-236 (located near the River) and SWP-283 (located high in the foothills). The hydrographs for these wells show stable groundwater levels near the river and in the foothills.

## 2.2 SURFACE WATER SUPPLIES

Individual water purveyors utilize both surface water and groundwater. The supply mix may include combinations of groundwater; American River water diverted pursuant to water rights, contract entitlements, or other agreements; or Sacramento River water diverted pursuant to water rights or contract entitlements. This section describes surface water supplies available to the water purveyors within the SGA. Regional and grouped data are provided in this section; water purveyor-specific data are presented in **Appendix B.**

### 2.2.1 Water Rights/Contract Entitlements

#### *2.2.1.1 American River Water Rights*

Four of the water purveyors within the SGA boundaries have water rights on the American River: Carmichael Water District (CWD), City of Folsom (Folsom), City of Sacramento (Sacramento), and San Juan Water District (SJWD).

The place of use (POU) for CWD's water right is coincident with the boundaries of the District.

The POU for Folsom's water right is coincident with the city limits and portions of the lands owned by Aerojet.

The POU for Sacramento's water rights on the American River extends beyond the boundaries of the city limits. The authorized POU outside the city limits includes (1) portions of California-American Water Company (Cal-Am), Arden service area; (2) Del Paso Manor Water District (DPMWD); (3) Sacramento Suburban Water District (Sac Suburban), Arcade service area (Town and Country subarea) and portions of Northridge service area; (4) SCWA, Arden Park Vista service area; (5) Southern California Water Company (SCWC), Arden Town service area; and (6) portions of CWD. In addition, a portion of Sacramento's American River POU overlaps with the place of use for the Sacramento River water rights and contract entitlements of NCMWC.

The POU for SJWD's water rights is the District's wholesale service area which encompasses SJWD retail service areas in Sacramento and Placer Counties, Citrus Heights Water District (CHWD), Fair Oaks Water District (FOWD), Orange Vale Water Company (OVWC), and that portion of Folsom that lies north of the American River.

#### *2.2.1.2 American River Contract Entitlements*

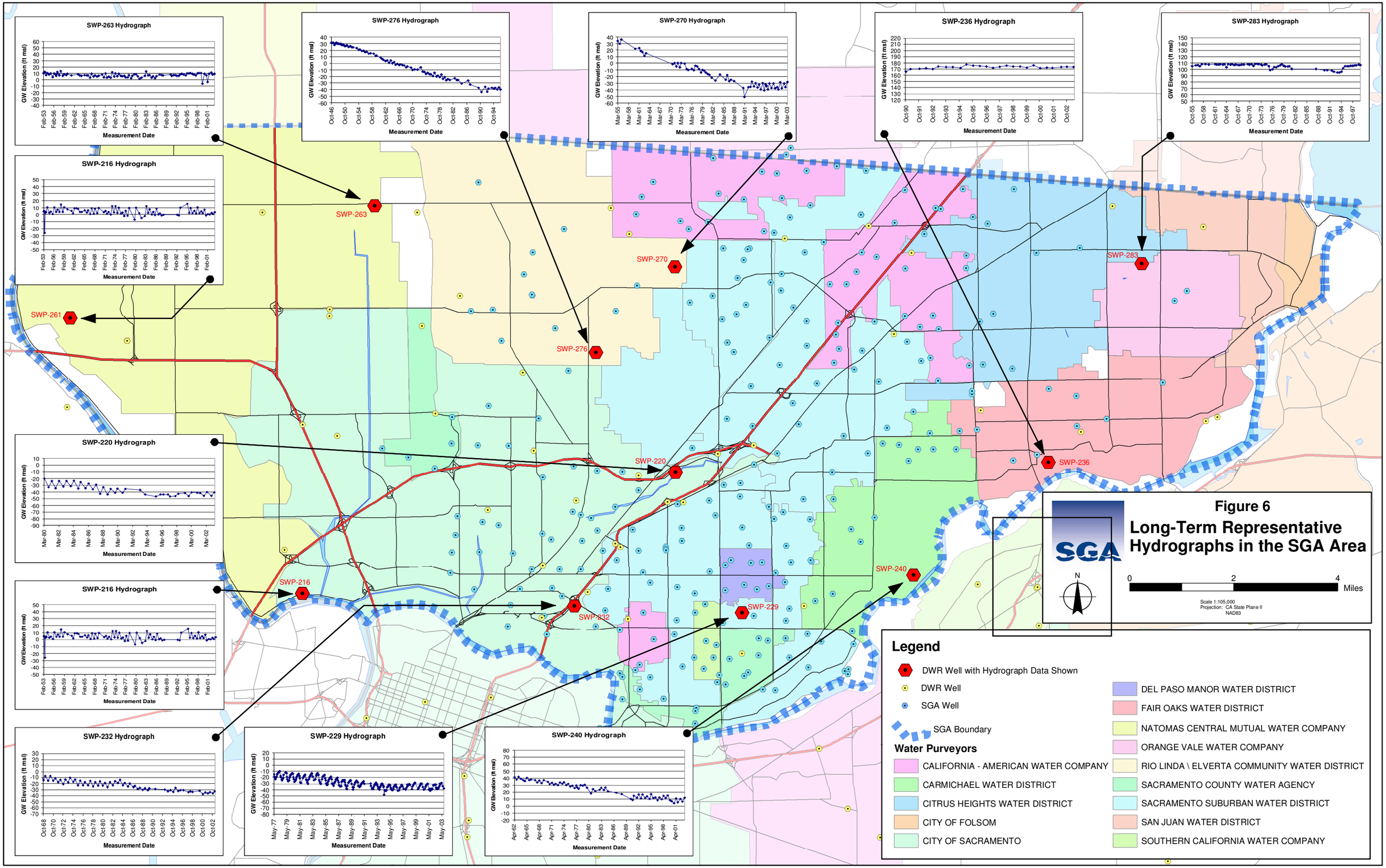
In Sacramento County, two water purveyors have existing water supply contract entitlements with the U.S. Bureau of Reclamation (Reclamation) Central Valley Project (CVP): Folsom and SJWD. SJWD provides CVP water to agencies within its wholesale service area.

In addition, SJWD and SCWA executed a water supply contract entitlement with Reclamation from Public Law (PL) 101-514 (commonly referred to as "Fazio Water") in 1999. However, the contract is currently being renegotiated under the CVP long-term contract renewals. SJWD's contract entitlement is for 13,000 AF/year, and this supply is used within SJWD's Sacramento County wholesale area. SCWA's contract entitlement is for 22,000 AF/year, and this supply is used within Zone 40 (south of the American River). Folsom has a subcontract with SCWA for 7,000 AF/year (out of the potentially available 22,000 AF/year).

Sac Suburban has a water sale agreement with Placer County Water Agency (PCWA). The POU for this water includes Sac Suburban's Northridge service area and Arcade service area (North Highlands subarea only) and the service areas of SJWD, FOWD, OVWC, CHWD, the former McClellan AFB, Cal-Am (Antelope and Lincoln Oaks\Royal Oaks service areas), and Rio Linda/Elverta Community Water District (RLECWD).

#### *2.2.1.3 Sacramento River Water Rights*

Two of the water purveyors within the SGA boundaries have water rights on the Sacramento River: Sacramento and NCMWC. The POU for NCMWC's water rights on the Sacramento River is the water company service area that includes both the Sacramento County and Sutter County areas. The POU for Sacramento's water rights on the Sacramento River is the city limits.

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#### *2.2.1.4 Sacramento River Contract Entitlements*

One water purveyor within the SGA boundaries has a CVP contract entitlement on the Sacramento River: NCMWC. The POU for this water is the water company service area that includes both the Sacramento County and Sutter County areas.

#### *2.2.1.5 Other Agreements*

Sacramento has agreements with Sac Suburban (for use within the Arcade Service Area only) and DPMWD to make surface water available for use within the portions of their service areas that lie within Sacramento's POU.

Sac Suburban has a temporary contract with Reclamation for surplus water (often referred to as Section 215 water). This contract has been exercised since 1991. Sac Suburban's Section 215 supplies ranged between approximately 100 AF/year and 11,880 AF/year during the period 1991 through 2000. Section 215 water is available on an intermittent basis subject to hydrologic conditions.

### 2.2.2 Surface Water Quality

Based on current Update Reports to the Watershed Sanitary Surveys for the American and Sacramento Rivers, these are both excellent supplies for drinking water in the Sacramento Metropolitan Area. The source waters can be treated to meet all Title 22 drinking water standards using conventional and direct filtration processes, as well as membranes. There are no persistent constituents in the raw waters that require additional treatment processes. However, there are sometimes seasonal treatment requirements for rice herbicides on the Sacramento River, which can be addressed through chemical oxidation processes. High turbidities during storm events are sometimes a treatment challenge, which can be managed by optimizing operations including adjusting chemical types and dosing schemes and reducing plant flow (Montgomery Watson and Archibald & Wallberg, 2000).

#### *2.2.2.1 American River*

Surface water quality in the American River is a function of the mass balance of water quality from tributary streams, diversions, agricultural return flows, subsurface drainage flows, permitted discharges from municipal and industrial (M&I) sources, and urban runoff. In general, the quality of water in the American River is high from the river's headwaters to its confluence with the Sacramento River. It is low in alkalinity, low in disinfection by-product precursor materials, low in mineral content, and low in organic contamination. Limited data also indicate that the source of water is low in microbial contamination from *Giardia* and *Cryptosporidium*. Turbidity levels in the American River tend to be higher in the winter than summer because of higher flows associated with winter storms.

***Folsom Reservoir.*** Water diverted from Folsom Reservoir is provided to the following SGA members: SJWD, CHWD, FOWD, OVWC, Folsom, and Sac Suburban[11]. Because the treatment facilities serving these areas share a common Folsom Dam intake facility, the raw water is considered to be similar with respect to quality. Characterization of Folsom Reservoir raw water quality is based on data collected by the Cities of Folsom and Roseville as well as SJWD.

Water diverted from the Folsom Dam is treated by SJWD and Folsom using conventional filtration processes with chlorine disinfection. Treated water quality varies depending on the specific type of treatment provided, but meets or exceeds all federal and state drinking water

[11] Water is also diverted, treated, and distributed by Roseville, located within Placer County.

standards for both SJWD and Folsom under current operations. Both agencies include corrosion control practices in their treatment of the water.

***American River at CWD's Bajamont Way Membrane Filtration Water Treatment Plant.*** CWD uses American River water diverted by three Ranney Collectors for water supply, therefore this is groundwater under the direct influence of surface water. This source now supplies 80 percent of CWD's needs. The Collectors are located within the American River floodplain and adjacent to the streambed. They serve as intake and pump structures to provide pre-filtered water to the Bajamont Way Membrane Filtration (Bajamont) Water Treatment Plant (WTP). The Bajamont WTP has a design capacity of 16 million gallons per day (mgd) and can be expanded to 22 mgd. The WTP is composed of microfiltration membrane units. After filtration, the water is chlorinated with sodium hypochlorite and the pH is adjusted with caustic soda prior to distribution. The treated water meets all current Title 22 drinking water quality standards (Archibald & Wallberg and MWH, 2003).

***Lower American River at Sacramento's E.A. Fairbairn Water Treatment Plant.*** Water is diverted by Sacramento on the lower American River just downstream of the Howe Avenue crossing at the E.A. Fairbairn WTP. This water may be used by other entities within the POU on a wholesale basis. Water diverted at the plant undergoes conventional treatment and disinfection. The treated water meets all current Title 22 drinking water quality standards (Archibald & Wallberg and MWH, 2003).

#### *2.2.2.2 Sacramento River*

Sacramento River water quality is largely influenced by a mass balance of water quality from upstream reservoir release operations, tributary flows (including the lower American River), agricultural runoff, subsurface drainage flows, and diversions, with other impacts from permitted discharges from M&I sources, urban runoff and spills. In general, the quality of the Sacramento River is high in the vicinity of the SGA boundary. There are moderate amounts of alkalinity and minerals and low levels of disinfection by-product precursors. Turbidity levels in the Sacramento River are higher during the winter and early spring months, usually associated with reservoir releases or runoff from storm events. There are very infrequent detects of organic chemicals, many of which are pesticides or herbicides from agricultural operations. Data collected to date indicate that there is a low prevalence of *Giardia* and *Crytposporidium* in the river, with protozoa only detected sporadically and at very low concentrations.

The characterization of the Sacramento River water quality in the vicinity of the SGA boundary is based on reports for the Sacramento River Water Treatment Plant (Sacramento River Watershed Sanitary Survey; 1995 Report and 2000 Update, prepared by MWH and Archibald & Wallberg).

***Sacramento River at Sacramento's Sacramento River Water Treatment Plant.*** Water is diverted by Sacramento on the Sacramento River just downstream of the confluence with the American River. This water can be supplied to Sacramento and other entities within the place of use on a wholesale basis. Characterization of the Sacramento River raw water quality at the Sacramento River WTP is based on data collected by Sacramento (Sacramento River Water Treatment Plant – Finalization of Preliminary Design, prepared by Montgomery Watson, 1998).

Water is treated by Sacramento using conventional filtration processes with chlorine disinfection. Treated water quality meets or exceeds all federal and state drinking water standards under current operations. Sacramento includes corrosion control in their treatment of the water.

Primary drinking water standards are set for constituents that cause an adverse impact to human health. Secondary drinking water standards are set for constituents that cause an unpleasing aesthetic impact on the water quality; these are not health-based standards. There were no violations of primary or secondary drinking water standards reported for any of the characterization points discussed above.

## 2.3 "OTHER" SUPPLIES

Currently, limited opportunities exist for using recycled water north of the American River. In Sacramento County, the most probable recycled water opportunity exists at the Sacramento Regional Wastewater Treatment Plant (Sac Regional) located on the Sacramento River near Freeport (south of the American River and outside the SGA boundaries). At this time, however, Sac Regional does not appear to be a likely source of recycled water for the area north of the American River. The cost of pumping recycled water from Sac Regional to areas north of the American River is currently prohibitive. A more economic reclamation program might include the scalping of wastewater flows north of the American River for treatment at satellite plants.

In Placer County, Roseville has a recycled water program and is delivering recycled water for irrigation of golf courses and streetscape. Under this program, Roseville is studying potential locations for direct groundwater recharge with recycled water, in both Placer and northern Sacramento counties.

## 2.4 EXISTING FACILITIES AND OPERATIONS

### 2.4.1 Major Infrastructure

For the purposes of this GMP, the existing major infrastructure is divided into three major categories: surface water supply facilities, groundwater supply facilities, and system distribution/transmission and storage facilities. **Figure 7** presents a regional map of existing and planned principal infrastructure[12].

#### *2.4.1.1 Surface Water Supply Facilities*

There are four major diversion and treatment facilities on the American and Sacramento rivers that provide surface water within the SGA boundaries (see **Table 2**).

#### *2.4.1.2 Groundwater Supply Facilities*

The water purveyors within the SGA boundaries maintain and operate 269 groundwater wells (see **Table 3** and **Figure 6**). Most production capacities are in the range of 330 to 2,250 gallons per minute (gpm).

#### *2.4.1.3 System Distribution/Transmission and Storage Facilities*

The Cooperative Transmission Pipeline (CTP)/Northridge Transmission Pipeline (NTP) is the only existing major transmission facility capable of conveying water across the region. Major intra-agency transmission and distribution systems are also shown on **Figure 7**. Most agency-to-agency interconnections are presently used for emergency purposes only.

[12] Much of the planned infrastructure is attributable to the RWA's American River Basin Regional Conjunctive Use Program (see **Section 3** for a description). Individual agencies may be considering facilities that are not shown here.

### Table 2. Treatment Capacity at WTPs Providing Surface Water within the SGA Boundaries

| Source Water/Facility/Owner | Treatment Capacity (million gallons per day, mgd) |
|---|---|
| Folsom Reservoir | |
| Peterson WTP (SJWD) | 120 [1] |
| Lower American River | |
| Bajamont WTP (CWD) | 22 |
| E.A. Fairbairn WTP (Sacramento) | 200 [2] |
| Sacramento River | |
| Sacramento River WTP (Sacramento) | 160 [2] |

**Notes:**
[1] Planned improvements to solids handling system and backwash treatment will increase treatment capacity from 108 mgd (reliable capacity) to 120 mgd (design hydraulic capacity).
[2] Expansions to listed treatment capacities currently under way.

### Table 3. Groundwater Wells within SGA Boundaries

| Water Purveyor | Number of Groundwater Wells |
|---|---|
| Cal-Am | 51 |
| CWD | 14 |
| CHWD | 11 |
| Folsom | 0 |
| Sacramento | 40 |
| DPMWD | 8 |
| FOWD | 8 |
| NCMWC | 0 |
| OVWC | 2 |
| RLECWD | 12 |
| Sac Suburban | |
| Arcade Service Area | 66 |
| Northridge Service Area | 32 |
| SCWA | 17 |
| SCWC | 8 |
| SJWD | 0 |
| Individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts) | -- [1] |

Source: DMS, August 2003
**NOTES:**
[1] SGA does not have information on these wells.

Water purveyors that serve primarily groundwater (e.g., DPMWD) have little aboveground storage, relying instead on the groundwater basin for storage. Conversely, water purveyors that serve surface water (either partially or entirely) have made investments in aboveground storage for both raw and treated waters and associated pump stations. These purveyors include: Cal-Am, CWD, Sacramento, FOWD, Sac Suburban, and SJWD.

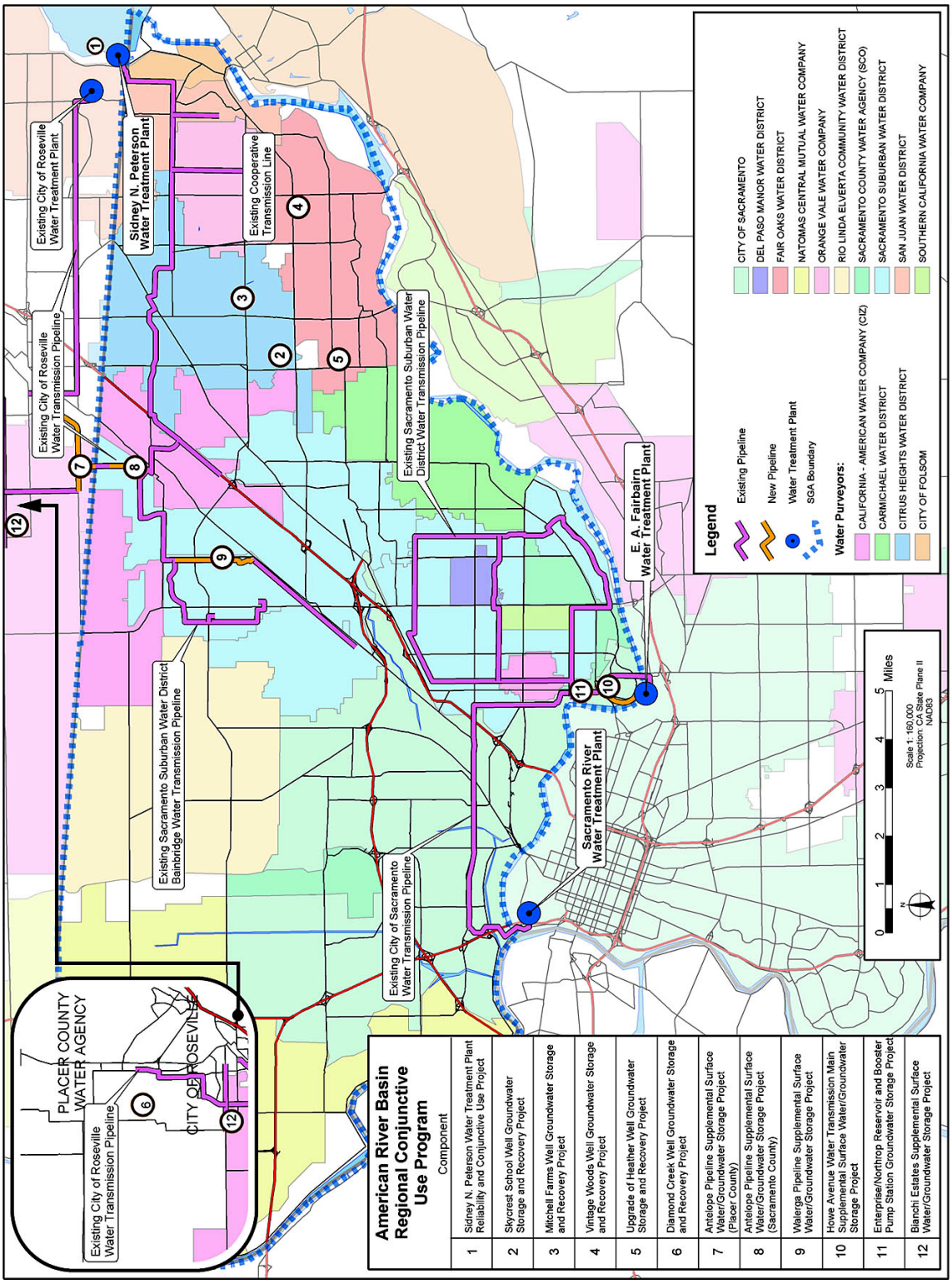



**Figure 7. Existing Principal Infrastructure and Additional Infrastructure Resulting from American River Basin Regional Conjunctive Use Program**

### 2.4.2 Operations

Recent (year 2002) surface water and groundwater use by the water purveyors within the SGA boundaries are shown in **Table 4** and on **Figure 8**. **Table 4** shows that Sacramento, Sac Suburban, and Cal-Am extracted the largest volumes of groundwater. These districts serve the largest, and some of the most densely populated, regions within the SGA boundaries. NCMWC, OVWC, Folsom, and SJWD extracted the least amount of groundwater. These agencies get the vast majority of their water from surface water sources, as shown in **Figure 8**. Total groundwater extraction by SGA member agencies during the last five years (1998 – 2002) is shown in **Figure 9**.

## 2.5 FUTURE FACILITIES AND OPERATIONS

Phase I of the RWMP identified and described a "menu" of project and program alternatives for implementing the WFA north of the American River. Phase II provided detailed hydrologic (including surface water and groundwater modeling), engineering (including conceptual design, operational analyses, and estimates of costs), and legal/institutional (including operational agreements and funding) evaluations of those projects and programs that best aligned with the goals and objectives of the individual water purveyors and the WFA. The recommendations resulting from Phase II were used to structure the SGA and RWA's regional projects and programs including: SGA-Sacramento Area Flood Control Agency (SAFCA) Pilot Study, 2002 CALFED Bay-Delta Program (CALFED) Environmental Water Account (EWA) Pilot Study, Sac Suburban's Groundwater Stabilization Project, Proposition 13 Groundwater Storage Program Construction Grant (i.e., American River Basin Regional Conjunctive Use Program or ARBCUP), and other ongoing efforts. Some of the planned infrastructure is shown in **Figure 7** and described in **Table 5**.

## 2.6 EFFECTS OF WFA IMPLEMENTATION

Implementation of the local conjunctive use program prescribed by the WFA will determine the year 2030 water supply scenarios for the water purveyors within the SGA's boundaries. (More detailed water purveyor-specific data are presented in **Appendix B**.) In general, the intent of the WFA is to increase the use of groundwater in dry years and reduce surface water diversions. The decrease in available dry year diversions is a consequence of the WFA objective to provide instream flows in the lower American River for environmental purposes. In wet years, when more surface water is available, diversion will be increased and groundwater extraction will be reduced, thereby promoting recharge of the basin.

### 2.6.1 Water Year Types

The WFA identifies three principal water year types. These year types are based on estimated March through November unimpaired inflow into Folsom Reservoir and are categorized as wet/average years, drier years, and driest years. For the water purveyors listed in **Table 4**, the specific year type criteria are stated.

## Table 4. Year 2002 and Projected 2030 Water Supply Scenarios for Water Purveyors within SGA Boundaries

| Water Purveyor | 2002 Water Supply Scenario | | Projected 2030 Water Supply Scenario [1] | |
|---|---|---|---|---|
| | Annual Demands [2] (AF/year) | Water Supply Mix, Surface Water/ Supplemental Supply[2], [3] (AF/year) | Annual Demands [4] (AF/year) | Water Supply Mixes by WFA Year Type, Surface Water/ Supplemental Supply[3] (AF/year) |
| Area "D" Agencies (within Sacramento's POU, north of American River) [5]: | | | **27,420** | W/A: 27,420/ 0 [7]<br>Drier: 3,500/23,920 [7]<br>Driest: 3,500/23,920 [7] |
| Cal-Am – Arden Service Area | -- [6] | -- [6] | 3,340 | |
| SCWA – Arden Park Vista Service Area | -- [6] | -- [6] | 3,150 | |
| DPMWD | 1,692 | 0 / 1,692 | 1,570 | |
| Sac Suburban – Arcade Service Area (Town & Country Sub-area) | -- [6] | -- [6] | 17,990 | |
| SCWC – Arden Town Service Area | 1,317 | 0 / 1,317 | 1,370 | |
| CWD | 13,280 | 9,507 / 3,773 | **12,000** [8] | W/A: 0/12,000 [9]<br>Drier: 0/12,000 [9]<br>Driest: 0/12,000 [9] |
| Folsom – north of American River only | 1,149 | 1,149 / 0 | -- [10] | -- [10] |
| Sacramento – north of American River only | 51,732 | 26,734 /24,998 [11] | **64,110** | W/A: 64,110/ 0 [12]<br>Drier: -- [12]<br>Driest:42,110/22,000 [12] |
| NCMWC | 88,028 [13] | 88,028 / 0 [13] | **51,570** | W/A: 45,610/ 5,960<br>Drier: 45,610/ 5,960<br>Driest: 45,610/ 5,960 |
| Sac Suburban and others within PCWA transfer water supply POU in Sacramento County: | | | **64,820** | W/A: 29,000/35,820 [15]<br>Drier: 0/64,820 [15]<br>Driest: 0/64,820 [15] |
| Cal-Am – Royal Oaks/Lincoln Oaks Service Areas | 19,867 [6] | 0 /19,867 [6] | 19,910 | |
| RLECWD | 3,367 | 0 / 3,367 | 18,690 | |
| Sac Suburban: | | | | |
| Arcade Service Area, North Highlands Sub-area | 22,711 [6] | 0 /22,711 [6] | 5,220 | |
| Northridge Service Area | 18,640 | 16,938 / 1,702 [11] | 19,490 | |
| McClellan AFB | -- [14] | -- [14] | 1,510 | |
| Sacramento International Airport | -- [16] | -- [16] | **6,260** | W/A: 0/ 6,260 [9]<br>Drier: 0/ 6,260 [9]<br>Driest: 0/ 6,260 [9] |
| SCWA – Northgate Service Area | 5,279 [6] | 0 / 5,279 [6] | **1,150** | W/A: 0/ 1,150 [9]<br>Drier: 0/ 1,150 [9]<br>Driest: 0/ 1,150 [9] |
| SJWD and consortium in Sacramento County | | | **43,920** | W/A: 43,920/ 0 [9]<br>Drier: Ranging from[9],[18] 43,920/ 0 to 35,510/ 8,410<br>Driest:35,510/ 8,410 [9] |
| CHWD | 19,913 | 17,617 / 2,296 [11] | 16,420 | |
| FOWD | 14,067 | 11,456 / 2,611 [11] | 14,220 | |
| OVWC | 4,377 | 4,377 / 0 | 6,750 | |
| SJWD | 4,661 | 4,661 / 0 | 6,530 [17] | |
| Individual representatives from agriculture and self-supplied groundwater users | -- [16] | -- [16] | -- [16] | -- [16] |

## Table 4. Year 2002 and Projected 2030 Water Supply Scenarios for Water Purveyors within SGA Boundaries (continued)

**NOTES:**

[1] Values rounded to nearest 10 AF.

[2] Surface water/supplemental water supply mixes from SGA DMS – year 2002 values as reported by individual water purveyors. Year 2002 water demands based on surface water/supplemental water supply mixes (assumes no shortages).

[3] Supplemental supplies may include groundwater extraction, demand management, and/or recycled water.

[4] From Cooperating Agencies RWMP, Phase II, Technical Memorandum 2, Table 1.

[5] Does not include portions of CWD and Sac Suburban (Northridge Service Area) also located within the Area "D" boundaries.

[6] SGA DMS reports data by water purveyor but not by service area.

[7] Assumes:

(1) Sac Suburban PSA accepted by Water Forum Successor Effort.

(2) Surface water from Sac Suburban and DPMWD contract agreements with Sacramento may be used within Area "D".

(3) Diversions at Fairbairn WTP are dependent upon flows bypassing the WTP exceeding the Hodge Flow Condition. (Hodge Flow Condition: Parties to the litigation (*Environmental Defense Fund et al. v. East Bay Municipal Utility District*) cannot divert water from the American River unless instream flows measure at least 2,000 cubic feet per second (cfs) from October 15 through February; 3,000 cfs from March through June; and 1,750 cfs from July through October 14.)

[8] CWD will divert up to its license amount of 14,000 AF. By the year 2030, it is most likely that the water demand for CWD will be reduced to their historic baseline level of 12,000 AF by implementation of the Urban Water Conservation Best Management Practices. Signatories to the WFA acknowledge and agree that CWD shall not relinquish control of or otherwise abandon the right to any quantity it has foregone delivery and/or diversion of under this Agreement, and shall retain the right (if any) to transfer that water for the other beneficial uses, after that water has served its purpose of assisting in the implementation of the Improved Pattern of Fishery Flow Releases, for diversion or rediversion at, near or downstream of the confluence of the lower American River.

[9] Wet/Ave Years: As it applies to these diverters, years when projected March through November Unimpaired Inflow to Folsom Reservoir is greater than 950,000 AF.

Drier Years: As it applies to these diverters, years when projected March through November Unimpaired Inflow to Folsom Reservoir is less than 950,000 AF.

Driest Years (i.e. Conference Years): Years when projected March through November Unimpaired Inflow to Folsom Reservoir is less than 400,000 AF. Conference years are those years that require diverters and others to meet and confer on how best to meet demands and protect the American River.

[10] Portion of Folsom (north of American River) included in SJWD.

[11] Data reflects participation in 2002 EWA Pilot Study.

[12] Wet/Average, Drier, and Driest year diversions are estimated. Diversions at Fairbairn WTP are dependent upon the flows bypassing the WTP exceeding the Hodge Flow Condition. (Hodge Flow Condition: Parties to the litigation (*Environmental Defense Fund et al. v. East Bay Municipal Utility District*) cannot divert water from the American River unless instream flows measure at least 2,000 cfs from October 15 through February; 3,000 cfs from March through June; and 1,750 cfs from July through October 14.)

[13] SGA DMS includes surface water diversions from both Sacramento and Sutter counties.

[14] McClellan AFB included in Sac Suburban (Northridge) data.

[15] Wet/Ave Years: As it applies to these diverters, years when projected March through November Unimpaired Inflow to Folsom Reservoir is greater than 1,600,000 AF.

Drier Years: As it applies to these diverters, years when projected March through November Unimpaired Inflow to Folsom Reservoir is less than 1,600,000 AF.

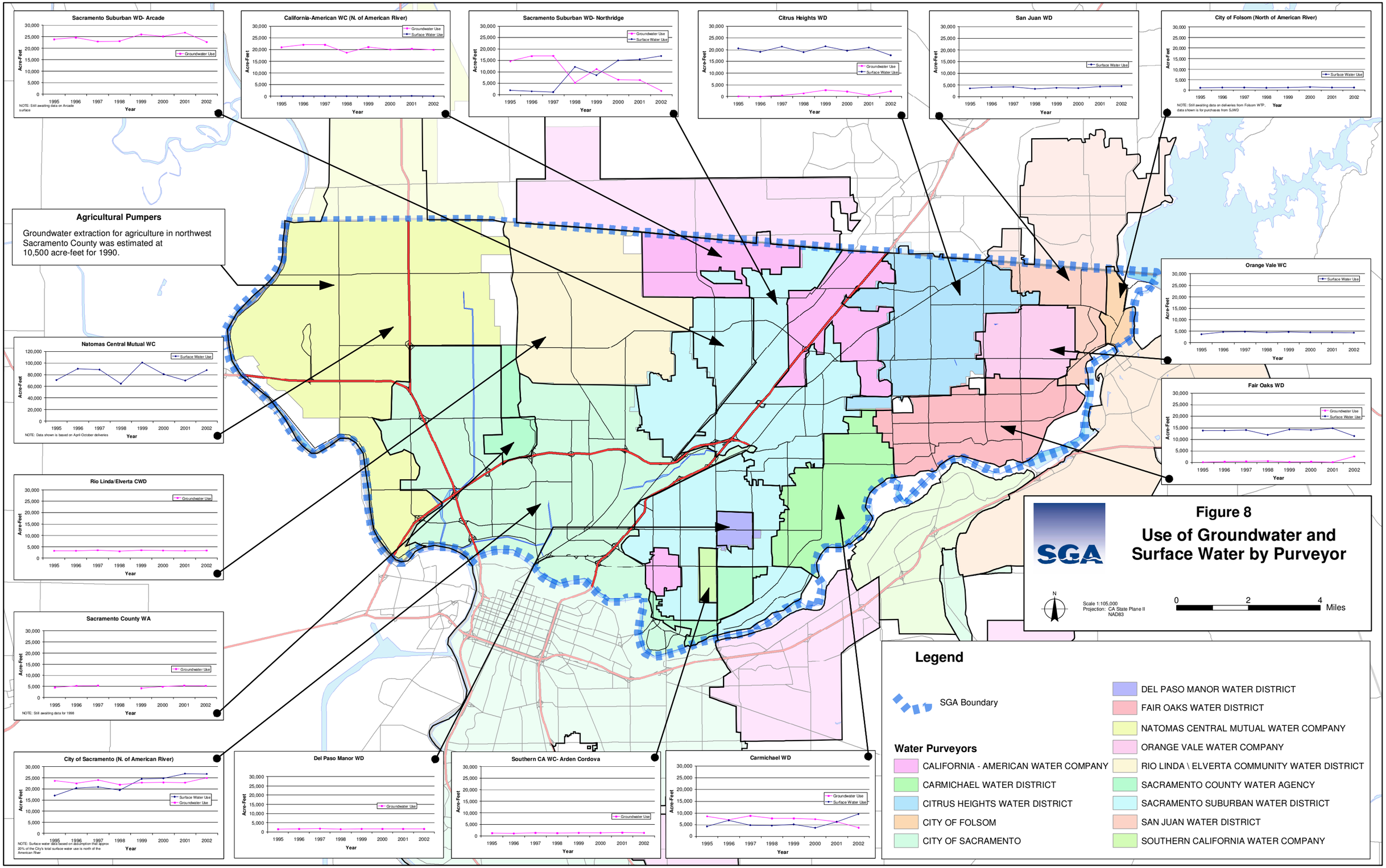
[16] Currently not tracked in the SGA DMS.

[17] Includes portion of Folsom (north of American River).

[18] Decrease in amount of surface water in proportion to the decrease in unimpaired flow from Folsom Reservoir.

### *2.6.1.1 Definition of Wet/Average Years*

For most diverters, wet/average years are defined as those years when the projected March through November unimpaired inflow into Folsom Reservoir is equal to or greater than 950,000 acre-feet (AF). For Sac Suburban's water sale agreement with PCWA, a wet/average year is defined as a year when the March through November unimpaired inflow into Folsom Reservoir is greater than 1,600,000 AF. For Sacramento, diversions from the American River at the Fairbairn WTP are based on meeting the Hodge Flows in the lower American River.

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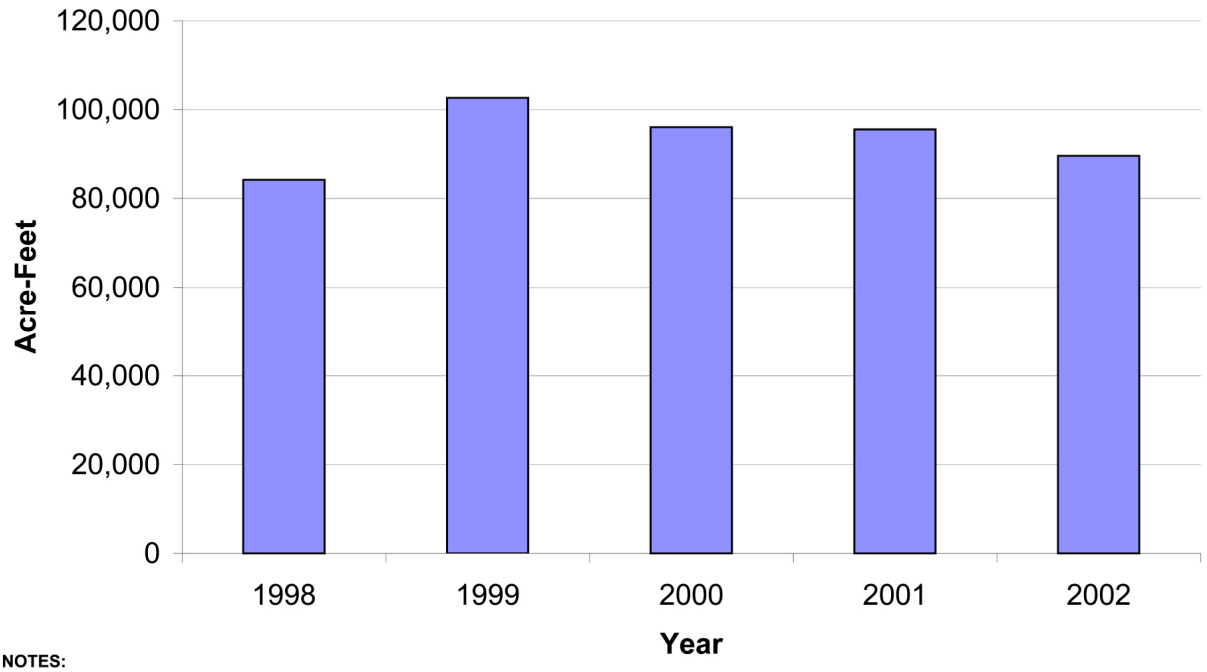


NOTES:
Does not include groundwater extraction by agriculture, self-supplied users, and private landowners.
1998 groundwater extraction does not include Sacramento County (still awaiting data).
1999 groundwater extraction includes participation in the SGA-Sacramento Area Flood Control Agency Pilot Study.
2000 through 2002 groundwater extraction reflects surface water deliveries to SSWD through its water sale agreement with PCWA.
2002 groundwater extraction also reflects participation in the CALFED Bay-Delta Program Environmental Water Account Pilot Study.

**Figure 9. Total Annual Groundwater Extraction by SGA Member Agencies (1998 – 2002)**

#### *2.6.1.2 Definition of Drier Years*

For most diverters, drier years are defined as those years when the projected March through November unimpaired inflow into Folsom Reservoir is less than 950,000 AF but equal to or greater than 400,000 AF.

#### *2.6.1.3 Definition of Driest Years*

The driest years, also referred to as "conference years", are defined as those year when the projected March through November unimpaired inflow into Folsom Reservoir is less than 400,000 AF.

### 2.6.2 WFA Water Supply Availability

Year 2030 implementation of the WFA will require increased groundwater extraction in the drier and driest years when less surface water is available from the American River. In the wet/average years, surface water diversions will be increased and groundwater pumping will be reduced. Projected year 2030 surface water and supplemental supply[13] use by the water purveyors within the SGA boundaries are shown in **Table 4**.

[13] Supplemental supplies may include groundwater extraction, demand management, and/or recycled water.

## Table 5. RWA ARBCUP – Summary of Program Facilities

| | Program Component | Operating Agency | Description | Grant Award Amount |
|---|---|---|---|---|
| 1 | Sidney N. Peterson WTP Reliability And Conjunctive Use Project | SJWD | WTP expansion and enhancement to increase rated capacity from 108 mgd (165 cfs) to 120 mgd (185 cfs) | $6,467,683 |
| 2 | Skycrest School Well Groundwater Storage And Recovery Project | CHWD | Groundwater well (capacity up to 2,500 gpm and depth of 500 feet) to augment groundwater extraction capacity for CHWD | $506,225 |
| 3 | Mitchell Farms Well Groundwater Storage And Recovery Project | CHWD | Groundwater well (capacity up to 2,500 gpm and depth of 500 feet) to augment groundwater extraction capacity for CHWD | $527,846 |
| 4 | Vintage Woods Well Groundwater Storage And Recovery Project | FOWD | Groundwater well (capacity up to 2,500 gpm and depth of 600 feet) to augment groundwater extraction capacity for FOWD | $756,505 |
| 5 | Upgrade Of Heather Well Groundwater Storage And Recovery Project | FOWD | Groundwater well (capacity up to 2,500 gpm and depth of 600 feet) to augment groundwater extraction capacity for FOWD | $667,371 |
| 6 | Diamond Creek Well Groundwater Storage And Recovery Project | Roseville | Groundwater well (capacity of 2,000 gpm and depth of 400 feet) to augment the groundwater extraction capacity for Roseville | $786,111 |
| 7 | Antelope Pipeline Supplemental Surface Water / Groundwater Storage Project (Placer County) | Roseville | Interconnection pipeline (portion within Placer County) connecting SJWD's Peterson WTP and Roseville WTP. Length is approx. 12,000 linear feet (2.3 miles) with 24-and 36-inch diameter pipeline, and capacity of 20 mgd (30 cfs) | $2,000,069 |
| 8 | Antelope Pipeline Supplemental Surface Water / Groundwater Storage Project (Sacramento County) | Sac Suburban | Interconnection pipeline (portion within Sacramento County) connecting SJWD's Peterson WTP and Roseville WTP. Length is approx. 3,500 linear feet (.7 miles) with 36-inch diameter pipeline, and capacity of 20 mgd (30 cfs) | $1,294,327 |
| 9 | Walerga Pipeline Supplemental Surface Water / Groundwater Storage Project | Sac Suburban | Interconnection pipeline will provide enhanced ability to deliver treated surface water to southern portion of Sac Suburban's Northridge Service Area and to McClellan AFB. Length is approx. 8,195 linear feet (1.6 miles) with 36-inch diameter pipeline, and capacity of 20 mgd (30 cfs) | $2,662,391 |
| 10 | Howe Avenue Water Transmission Main Supplemental Surface Water / Groundwater Storage Project | Sacramento | Transmission main will provide additional capacity across American River for delivery to Sacramento and Sac Suburban's Arcade Service Area. Length is approx. 6,446 linear feet (1.2 miles) with 54-inch diameter pipeline, and capacity of 50 mgd (80 cfs) | $3,861,067 |
| 11 | Enterprise / Northrop Reservoir And Booster Pump Station Groundwater Storage Project | Sac Suburban | Facility includes above-ground treated water storage reservoir for flow equalization and pump station for boosting treated water out of Sacramento's water transmission line into Sac Suburban's Arcade Service Area. Size of the storage tank is 5 million gallons (15 AF) and capacity of pump station is 20 mgd (30 cfs) | $2,078,266 |
| 12 | Bianchi Estates Supplemental Surface Water/Groundwater Storage Project | PCWA | Project includes pipeline tie-in and individual property water meters for 46 residential customers that have historically relied on groundwater. By changing to surface water supply, 45 AF of water will be recharged annually into basin through in-lieu recharge. Additionally, project will include property owner conservation training, which in combination with meters will promote water use efficiency | $63,836 |
| | | | | **$21,671,697** |

#### *2.6.2.1 Water Use by Year Type*

***Water Use in Wet/Average Years.*** In wet/average years, surface water diversions will be maximized. In those years, surface water use by the water purveyors within the SGA boundaries will total approximately 222,060 AF/year. Estimates for each water purveyor's surface water use in wet/average years are shown in **Table 4**.

Supplemental supplies will make up the difference between demands and available surface water supplies. In wet/average years, the need for supplemental supplies is estimated to be approximately 49,190 AF/year and is generally assumed to be met with groundwater supplies. It should be noted that this is well below the 131,000 AF/year long-term sustainable yield estimate cited in the WFA. Estimates for each water purveyor's supplemental supplies in a wet/average year are shown in **Table 4**.

***Water Use in Drier Years.*** In drier years, surface water diversions will be less than those in wet/average years, ranging from 169,140 to 138,730 AF/year. In drier years, the annual diversion amounts prescribed in the WFA are on a sliding scale based on the inflow to Folsom Reservoir. Estimates for each water purveyor's surface water use in wet/average years are shown in **Table 4**.

Supplemental supplies will make up the difference between demands and available surface water supplies. The need for supplemental supplies is estimated to range from 102,110 to 132,520 AF/year. It should be noted that in some drier years, the groundwater extraction rate will exceed the 131,000 AF/year long-term sustainable yield estimate cited in the WFA. Estimates for each water purveyor's surface water use in drier years are shown in **Table 4**.

***Water Use in Driest Years.*** In the driest years, surface water diversions will be minimized, totaling 138,730 AF/year. As shown in **Table 4**, this is approximately an 83,330 AF/year reduction in diversions from the wet/average years. In the driest years, the need for supplemental supplies will increase to 132,520 AF/year. The majority of these supplemental supplies will be derived from groundwater extraction, exceeding the 131,000 AF/year long-term sustainable yield estimate cited in the WFA.

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# 3 MANAGEMENT PLAN ELEMENTS

The elements of this GMP include an overall goal, a set of management objectives, and a series of plan components that discuss and identify the actions necessary for meeting the goal and objectives (see **Figure 10**).

## 3.1 GROUNDWATER MANAGEMENT GOAL

The goal of this GMP is to ensure a viable groundwater resource for beneficial uses including agricultural, industrial, and municipal supplies that support the WFA's co-equal objectives of providing a reliable and safe water supply and preserving the fishery, wildlife, recreational, and aesthetic values of the lower American River.

## 3.2 BASIN MANAGEMENT OBJECTIVES

To meet the goal stated above, the SGA has adopted five specific basin management objectives (BMOs). These BMOs include the following:

1. **Maintain or improve groundwater quality in the SGA area for the benefit of basin groundwater users.** The groundwater supplied for public consumption meets all public health criteria. However, occurrences of large-scale groundwater contamination are documented in the basin. It is the intent of the SGA that use of groundwater by member agencies in the basin is not hindered by contamination, and that such use does not cause degradation of the quality of the resource. Where contamination is documented, or occurs in the future, the SGA will coordinate with appropriate state and federal regulatory agencies to pursue actions that result in the containment and eventual remediation of the contaminant.
2. **Maintain groundwater elevations that result in a net benefit to basin groundwater users.** Over the past several decades, the extensive groundwater pumping to support urban development has resulted in a persistent cone of depression. The lowering of groundwater elevations can have adverse impacts ranging from increased energy costs to the need to deepen existing wells or even construct new ones. Increased conjunctive use in the basin, particularly additional groundwater extraction during drier years, may result in short-term water levels being drawn down below previous historical lows. The SGA intends that the impacts during these times be minimized and that overall groundwater levels in the basin be improved over time from the present condition.
3. **Protect against any potential inelastic land surface subsidence.** Land subsidence can cause significant damage to essential infrastructure. Historic land surface subsidence within the SGA area has been minimal, with no known significant impacts to existing infrastructure. Given the historical trends, the potential for land surface subsidence from groundwater extraction in the north area basin is remote. However, the SGA intends to monitor for potential land surface subsidence. If inelastic subsidence is documented in conjunction with declining groundwater elevations, the SGA will investigate appropriate actions to avoid adverse impacts.

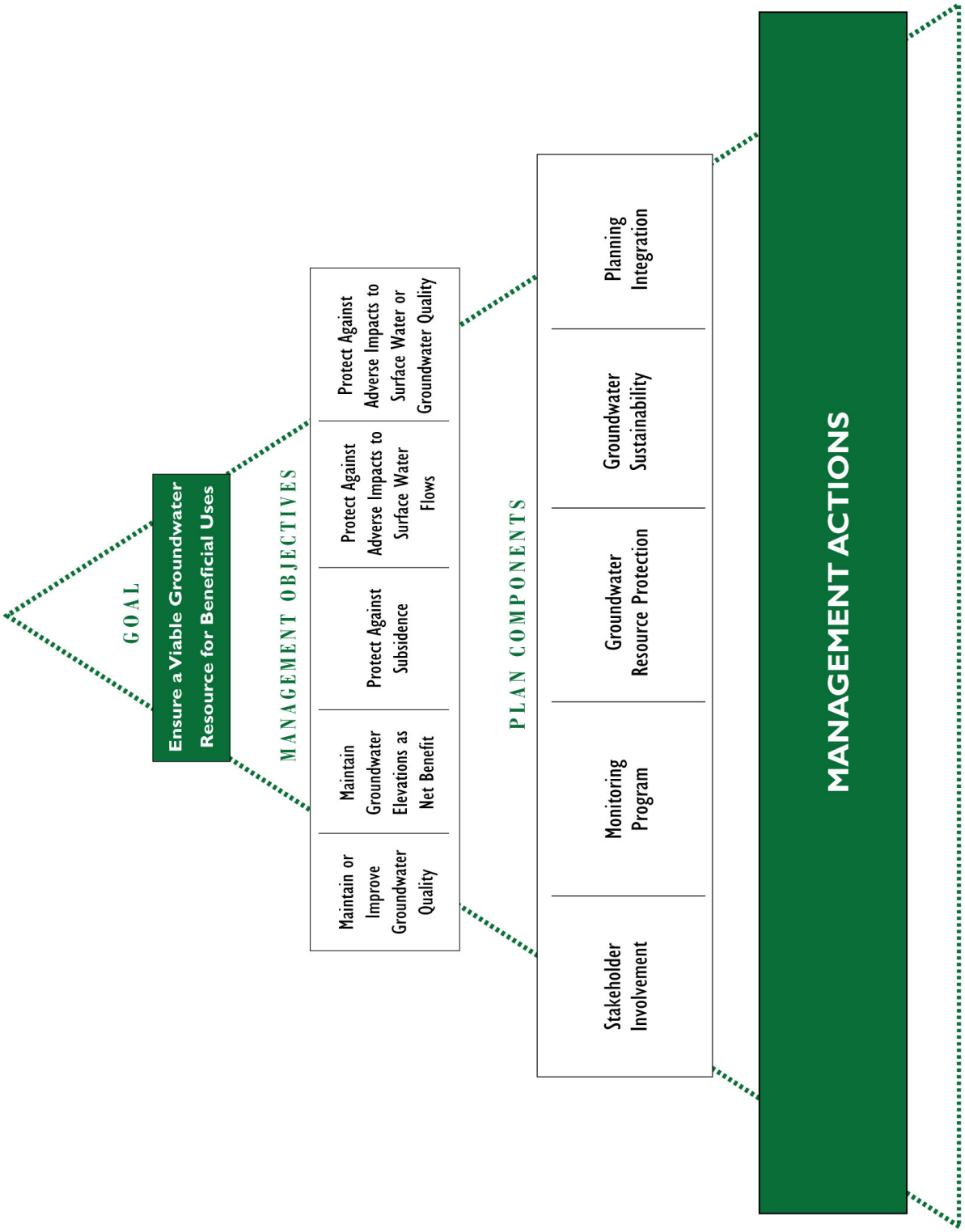


**Figure 10. Organization of Management Plan Elements**

4. **Protect against adverse impacts to surface water flows in the American River and Sacramento River.** Among other important uses, the American and Sacramento rivers provide habitat for a variety of fish and wildlife species. The SGA and its members are committed to the objectives of the WFA, including the objective to protect and enhance the lower American River. Important elements of the WFA include commitments to reduce lower American River diversions during dry years and to not exceed agreed upon groundwater extractions of 131,000 AF/year on average. In addition, the SGA plans to monitor and evaluate the relationship (if any) between groundwater pumping and adjacent river or stream flows.
5. **Protect against adverse impacts to water quality resulting from interaction between groundwater in the basin and surface water flows in the American River and Sacramento River.** In most natural settings, groundwater is higher in TDS and most other constituents than surface water. At the present time, the flow regime is such that groundwater is not discharging to the river systems in the SGA area. It is possible that future actions could temporarily alter that condition. It is the SGA's intent that controllable operations of the groundwater system do not negatively impact the water quality of the area's rivers and streams. The SGA will seek to gain a better understanding of potential impacts of the discharge of local-area groundwater to surface water channels.

## 3.3 GMP COMPONENTS

The GMP includes a variety of components that are required by CWC § 10753.7, recommended by DWR Bulletin 118 (2003), optional under CWC § 10753.8, and other components that the SGA has already begun. These components can be grouped into five general categories: (1) stakeholder involvement, (2) monitoring program, (3) groundwater resource protection, (4) groundwater replenishment, and (5) planning integration. Each category and its components are presented in this section. Under each component is a discussion, proposed actions, and identification of the objectives toward which the component is directed.

## 3.4 COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT

The management actions taken by the SGA may have a wide range of impacts on a broad range of individuals and agencies that ultimately have a stake in its successful management of the basin. The local consumer may be most concerned about water rates or assurances that each time the tap is turned a steady, safe stream of water is available. To large state and federal water resource agencies, the degree to which the SGA can achieve local supply reliability and further banking and exchange programs enhances the state and federal programs' opportunity to meet statewide needs, particularly in drier years. To address the needs of all of these stakeholders, the SGA has pursued several means of achieving broader involvement in the management of the North Area Groundwater Basin. These include: (1) involving members of the public, (2) involving other local agencies within and adjacent to the SGA area, (3) using advisory committees for development and implementation of the GMP, (4) developing relationships with state and federal water agencies, and (5) pursuing a variety of partnerships to achieve local supply sustainability. Each of these is discussed further below.

### 3.4.1 Involving the Public

Groundwater in California is a public resource, and the SGA is committed to involving the public in the development and implementation of its GMP. When the JPA creating the SGA was signed by the cities of Citrus Heights, Folsom, and Sacramento and the County of Sacramento,

those entities chose an inclusive governance structure consisting of Board membership from all water suppliers overlying the SGA portion of the basin. Many of these Board members are elected officials representing the various water districts and the citizens they serve.

In the preparation of this GMP, the SGA has filed four separate notices in the Sacramento Bee (**Appendix C**). In accordance with CWC § 10753.2, a notice of intent to adopt a resolution to prepare a GMP and inviting the public to the August 14, 2003 SGA Board meeting was published. Upon adoption of the resolution of intent, the resolution was also published in the Sacramento Bee. Additionally, a separate notice inviting the public to participate in developing the GMP and explaining how they could do so was published in May 2003 in the Sacramento Bee. Finally, the SGA provided a public comment period on the draft GMP and noticed and held a second meeting for the public to comment on the GMP prior to its adoption.

The SGA has also demonstrated its commitment to outreach and education. In addition to all required public notification, the SGA prepared a public outreach plan as part of a partnership with DWR. The plan includes many strategies for communicating with both internal and external audiences for various aspects of the program. The Public Outreach Plan Summary from the report by Lucy & Company (2003) is included in **Appendix C**.

In November 2003, the SGA released a Web site (www.sgah2o.org). The SGA will use its Web site to distribute information on GMP implementation activities to the public.

***Actions.*** The SGA will take the following actions:

1. Continue efforts to encourage public participation as opportunities arise.
2. Review and take actions from the public outreach plan as necessary during implementation of various aspects of the GMP.
3. Provide briefings to the Water Forum Successor Effort on GMP implementation progress.
4. Work with members to maximize outreach on GMP activities including the use of the SGA Web site, member Web sites, or bill inserts.

### 3.4.2 Involving Other Agencies Within and Adjacent to the SGA Area

The SGA's legal boundary is limited to that of the JPA signatories in Sacramento County north of the American River. This includes all of Sacramento County north of the American River. All water purveyors in northern Sacramento County are SGA members and are participating in the development and implementation of this GMP. **Figure 11** shows the SGA purveyors and some of the key adjacent entities that SGA has begun coordinating with during development of the GMP. One key agency within the SGA boundary that is not a water purveyor is the Air Force Real Property Agency (AFRPA), which oversees remediation efforts of contaminated soil and groundwater at the former McClellan AFB. The SGA and the AFRPA have established a committee to meet and discuss issues related to groundwater management and remediation efforts at the former McClellan AFB, and is integrating some of the monitoring wells at McClellan AFB into the SGA monitoring network (see **Section 3.5**).

Other users in the basin not noted on **Figure 11** include agriculture and other self-supplied groundwater producers. The SGA should ensure effective outreach to these groups.

The SGA boundary covers approximately the southern one-third of the North American Subbasin as defined by DWR (**Figure 2**). The remainder of the subbasin includes portions of Sutter and Placer counties.

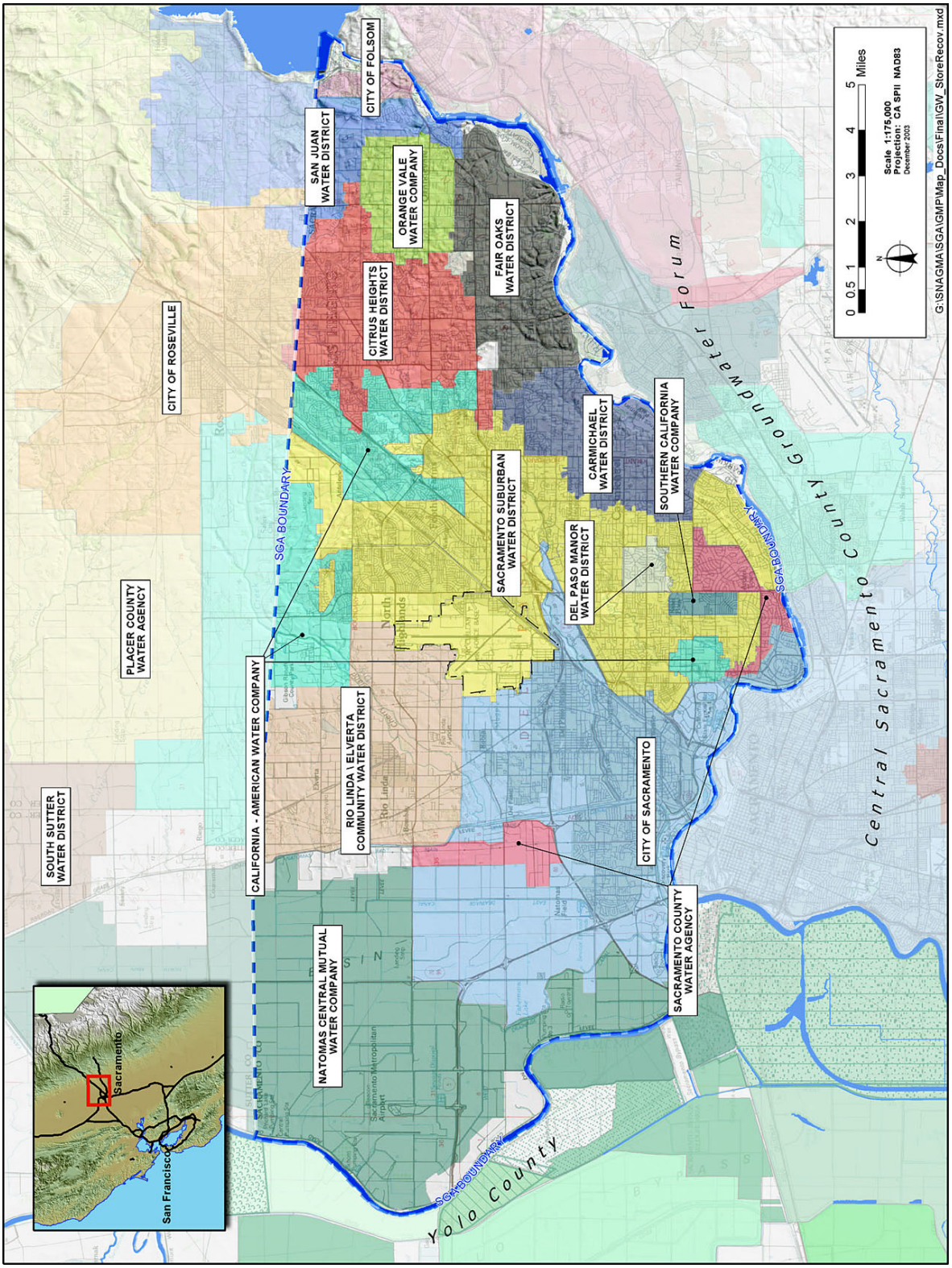


**Figure 11. SGA Member Agencies and Other Adjacent Local Agencies**

In 2000, NCMWC adopted a GMP for its service area in both Sacramento and Sutter counties (Luhdorff & Scalmanini Consulting Engineers (LSCE), 2000). That GMP will continue to apply to NCMWC's Sutter County service area, while the SGA GMP will be in effect for the Sacramento County portion. NCMWC and SGA are coordinating to ensure that NCMWC's management needs continue to be met in Sacramento County through the SGA GMP.

In Placer County, the SGA is closely connected to groundwater management activities through the RWA. PCWA, Roseville, and the City of Lincoln (Lincoln) are all members of the RWA. PCWA adopted an AB 3030 GMP in 1998, which includes Roseville. PCWA adopted an updated GMP in compliance with SB 1938 in November 2003. The RWA Executive Director is on a steering committee for implementation of the West Placer County Groundwater Management Plan. Lincoln is not covered by the PCWA plan, and adopted its own SB 1938-compliant GMP in November 2003. The RWA Executive Director is a member of the Advisory Committee organized to develop and implement that plan. Finally, SGA staff have briefed PCWA staff responsible for groundwater management on the SGA GMP development and have designated a representative from Placer County as a member of the SGA GMP Technical Review Committee (see **Section 3.4.3**).

In Sutter County, much of the subbasin is managed either by South Sutter Water District (South Sutter) or by NCMWC. NCMWC is an SGA member although the Sutter County portion of the district does not fall under this GMP because it is beyond the boundaries of the SGA's authority. South Sutter adopted an AB 3030 GMP in 1995. South Sutter provided a copy of that GMP to the SGA, and the SGA provided a briefing to the South Sutter General Manager on its current GMP development efforts. Finally, the SGA appointed a representative from Sutter County Department of Public Works as a member of the SGA GMP Technical Review Committee.

In addition to involving other agencies within the North American Subbasin, the SGA has briefed representatives of Yolo County (representing the Yolo Subbasin) to the west and the Central Sacramento County Groundwater Forum (or Groundwater Forum, representing the South American Subbasin) to the south. The SGA also maintains close coordination with the Central Sacramento County through the RWA by being an active associate member of the Groundwater Forum's water purveyor interest group.

***Actions.*** The SGA will take the following actions:

1. Continue high level of involvement demonstrated through the SGA GMP development into implementation of the plan by continued participation on committees described above.
2. Provide copies of the adopted GMP and subsequent annual reports to representatives from Placer, Sutter, and Yolo counties, and the Groundwater Forum.
3. Meet with representatives from Placer, Sutter, and Yolo counties, and the Groundwater Forum as needed.
4. Coordinate a meeting with agricultural pumpers in the SGA area to inform them of the SGA's management responsibilities and activities, and develop a list of agricultural groundwater pumpers concerns and needs relative to the SGA's management of the area.
5. Coordinate a meeting with other self-supplied pumpers in the SGA area to inform them of the SGA's management responsibilities and activities, and develop a list of self-supplied groundwater pumpers concerns and needs relative to the SGA's management of the area.

### 3.4.3 Utilizing Advisory Committees

The SGA is committed to using advisory committees in its GMP development and implementation. Prior to beginning development of the GMP, the SGA Board appointed an ad hoc committee to make recommendations for the composition of a Policy Committee and Technical Review Committee to guide development of the GMP. The ad hoc committee recommended that the Policy Committee be composed of SGA members representing the overall composition of the groundwater users within the SGA boundaries and that the Technical Review Committee include broader membership including agencies outside the SGA boundaries to consider technical issues related to the plan. Each committee met on approximately a monthly basis during GMP development.

The primary groups represented on the Policy Committee include:

- Cal-Am
- Sacramento
- NCMWC
- Sac Suburban
- San Juan Family[14]
- Agriculture

The primary groups represented on the Technical Review Committee include:

- Sacramento
- NCMWC
- Placer County/Roseville
- Sac Suburban
- San Juan Family
- DWR
- Sutter County

***Actions.*** The SGA will take the following action:

1. Upon adoption of the GMP, the Policy Committee will meet to discuss the continuation and composition of committees to guide implementation of the plan. Provide these recommendations to the SGA Board of Directors.

### 3.4.4 Developing Relationships with State and Federal Agencies

Working relationships between the SGA and the local, state, and federal regulatory agencies are critical to developing and implementing the various groundwater management strategies and actions detailed in this GMP. Examples of the SGA, RWA, Cooperating Agencies, and their member agencies working cooperatively with the regulatory agencies include:

- **Cooperating Agencies RWMP.** Both Reclamation and DWR participated in and provided funding for the RWMP effort (Phases I and II).

[14] The San Juan Family is comprised of SJWD, CHWD, FOWD, OVWC, and Folsom (north of the American River).

- **Banking and Exchange Program.** A partnership of the Cooperating Agencies and the SGA was the first signatory of a Memorandum of Understanding with DWR's Integrated Storage Investigation (ISI) in March 2000. The potential for a regional banking and exchange program was investigated through pilot studies and related activities. DWR's ISI provided funding for this effort.
- **SGA-SAFCA Pilot Study.** In 1999/2000, the SGA's first pilot study was conducted in conjunction with a local flood control agency (SAFCA) and Reclamation.
- **EWA Pilot Study.** In 2002, SGA's pilot study was the first water acquisition made by Reclamation on behalf of the EWA.
- **SGA DMS.** The U.S. Army Corps of Engineers (USACE) and DWR participated in the development of and provided funding for the SGA DMS (Phases I and II).
- **American Basin Conjunctive Use Feasibility Study.** In the mid-1990s, DWR conducted a feasibility study of conjunctive use parts of Sacramento, Sutter, and western Placer counties. NCMWC, an SGA member, was a cooperator in the study. The investigation serves as a good example of developing relationships between state and local agencies.

The SGA also coordinates and develops working relationships with other local, state, and federal regulatory agencies (e.g., Sacramento County, California Department of Health Services (DHS), U.S. Environmental Protection Agency (USEPA), etc.), as appropriate.

***Actions.*** The SGA will take the following action:

1. Continue to develop working relationships with local, state, and federal regulatory agencies.

### 3.4.5 Pursuing Partnership Opportunities

The SGA is committed to facilitating partnership arrangements at the local, state, and federal levels. In the past decade, Sacramento-area water community and other local leaders have made great strides toward regional planning and collaboration on water issues. The historic WFA, which involved over 40 stakeholders and 7 years of facilitated discussions, resulted in a regional framework to balance the competing demands for increased use of surface and groundwater with the environmental needs of the lower American River through the year 2030. Several important partnerships have been formed to implement the WFA as well as provide a host of other benefits to water agencies and the customers that they serve.

The SGA itself is a unique partnership between the cities and county entering a joint powers agreement and allowing the agency to be overseen by a board of local water purveyors and self-supplied and agricultural interests. Regionally, the SGA is closely partnered with the RWA, the Water Forum Successor Effort, and the Cooperating Agencies. Together these activities define and support a conjunctive use program, which is critical to supporting the overall management goal of a safe and reliable water supply.

While the facilities necessary for local supply reliability through 2030 have been identified through the RWMP, the potential exists to expand conjunctive use operations in the basin to achieve broader regional and statewide benefits. The needed facilities, however, would require substantial resources. To investigate any further opportunities would require resources provided through partnerships from potential beneficiaries.

***Actions.*** The SGA will take the following actions:

1. Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits.
2. Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects.

## 3.5 COMPONENT CATEGORY 2: MONITORING PROGRAM

At the heart of this GMP is a monitoring program capable of assessing the status of the basin and responses in the basin to future management actions. The program includes the monitoring of groundwater elevations, monitoring of groundwater quality, monitoring and assessing the potential for land surface subsidence resulting from groundwater extraction, and developing a better understanding of the relationship between surface water and groundwater along the American and Sacramento rivers. Also important is the establishing of monitoring protocols to ensure the accuracy and consistency of data collected. Finally, the monitoring program includes a tool, the DMS, for assembling and assessing the groundwater-related data in the North Area Groundwater Basin.

### 3.5.1 Groundwater Elevation Monitoring

The SGA has compiled historic water level data measurements extending from prior to 1950 through 2002. Sources of historic water level data for the SGA area include:

- DWR/SCWA
- SGA Member Agencies
- USGS
- CSUS

DWR and SCWA have maintained a program of measuring more than 30 wells in the basin, from which SCWA routinely generates annual contour maps for the county. However, the wells monitored have been added to and dropped off of the network over time, so it is difficult to compare a historic contour plot to a recent one. For this reason, the SGA is establishing a standardized network of wells that combines those monitored by DWR and SCWA with wells from member water purveyors and other sources. It is the SGA's intent that these wells be maintained as a consistent long-term network that represents overall groundwater elevation conditions in the basin. **Figure 12** shows the wells currently proposed for this network.

The wells were selected to provide uniform geographic coverage throughout the 195 square mile SGA area, and in an area around the northern, western, and southern perimeter of the SGA[15]. The well network was developed by first establishing a network of sampling grids using the following method:

- Overlay a matrix of evenly spaced points over the SGA area.
- Surround matrix of points with polygons.
- Conform boundaries of polygons to the SGA boundaries and regenerate area grids.

[15] No wells were selected east of the boundary because it is in consolidated rock outside of the groundwater basin.

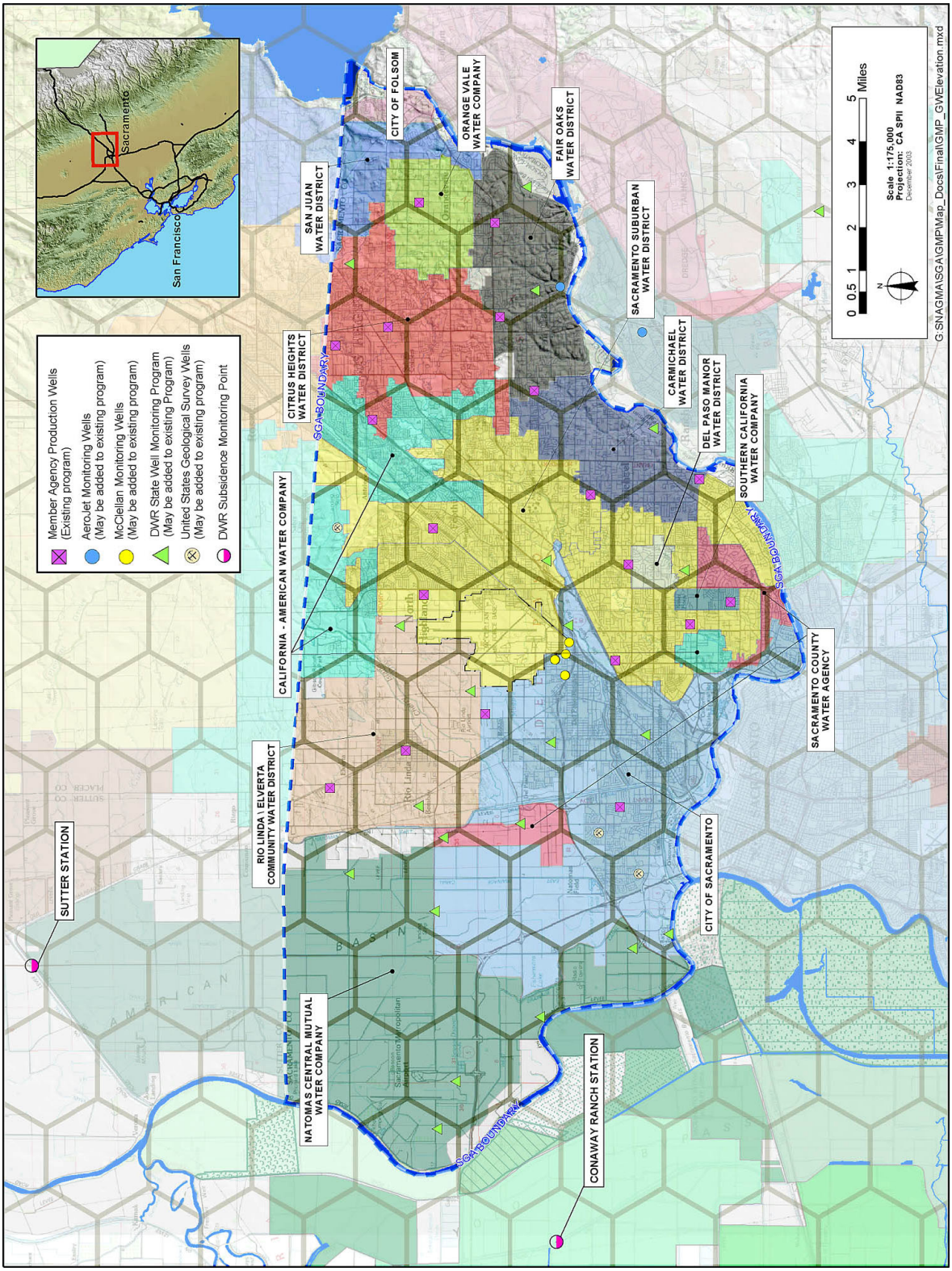


**Figure 12. Initial Proposed Wells for Consideration in SGA Groundwater Elevation Monitoring Network**

The resulting grid, shown on **Figure 12,** includes 44 polygons of roughly equal area of about five square miles each. The proposed set of member agency monitoring wells were selected from the DMS to represent water levels for as many polygons as possible. Individual wells were selected by:

- Giving preference to wells currently in DWR's and SCWA's monitoring program. These wells were selected because (a) they have long records of historic water level data and are useful in assessing trends within the groundwater basins, (b) uniform protocols were used in measuring and recording the water level data, and (c) these are non-producing wells, so water level readings represent relatively static levels.
- Identifying member agency wells with well construction information, long records of water level data and giving preference to those wells with the lowest recent extraction volumes.
- Plotting the location of USGS wells within the SGA area and choosing wells in those areas void of DWR or member agency wells.

***Actions.*** Additional actions by the SGA will include:

1. Coordinate with member agencies and DWR to identify an appropriate group of wells for monitoring for a spring 2004 set of groundwater elevation measurements.
2. Coordinate with DWR and SCWA to ensure that the selected wells are maintained as part of a long-term monitoring network.
3. Coordinate with DWR and SCWA to ensure that the timing of water level data collection by member agencies coincides within one month of DWR and SCWA data collection. Currently DWR and SCWA collect water level data in the spring and fall.
4. Coordinate with member agencies to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies.
5. Coordinate with the USGS to determine the potential for integrating USGS monitoring wells constructed for the NAWQA Program into the SGA monitoring network.
6. Consider ways to fill gaps in the monitoring well network by identifying additional suitable existing wells or identifying opportunities for constructing new monitoring wells.
7. Assess groundwater elevation trends and conditions based on the network annually.
8. Assess the adequacy of the groundwater elevation monitoring well network annually.
9. Identify a subset of monitoring wells that will be monitored more frequently than twice annually to improve the SGA's understanding of aquifer responses to pumping throughout the year.

### 3.5.2 Groundwater Quality Monitoring

Because most of the wells in the basin are used for public water supply, an extensive record of water quality data is available for most wells dating from about 1985 to present. The SGA has compiled available historic water quality data for constituents monitored as required by DHS under Title 22. Sources of water quality data include:

- DWR
- SGA Member Agencies

- USGS
- CSUS

This level of monitoring is sufficient under existing regulatory guidelines to ensure that the public is provided with a safe, reliable drinking water supply. It would ultimately be important to have in place a network of shallow (less than 200 feet deep), dedicated monitoring wells to serve as an early warning system for contaminants that could make their way to the greater depths in the basin where SGA members primarily extract groundwater. The SGA has identified the locations of several wells associated with the USGS NAWQA program and is working with AFRPA to identify a subset of the approximately 400 monitoring wells located in and around the former McClellan AFB for integration into the SGA monitoring effort. The SGA will also coordinate with the CVRWQCB, which oversees the remediation of LUSTs, to identify existing dedicated monitoring wells in the basin.

**Figure 13** shows the existing SGA member agency production wells. Title 22 water quality reporting is required by DHS for each of these public drinking water supplies. The SGA's water quality monitoring network includes these wells. The water quality monitoring well network may be expanded to include additional DWR, USGS, McClellan AFB, Aerojet, CVRWQCB, and privately owned wells, based on the outcome of coordination meetings with these agencies.

***Actions.*** The following actions will be taken by the SGA to monitor and manage groundwater quality:

1. Coordinate with member agencies to verify that uniform protocols are used when collecting water quality data.
2. Coordinate with the USGS to obtain historic water quality data for NAWQA wells, determine timing and frequency of monitoring under USGS program, and to discuss the potential for integrating USGS monitoring resources with the SGA network.
3. Coordinate with member agencies and other local, state, and federal agencies to identify where wells may exist in areas with sparse groundwater quality data. Identify opportunities for collecting and analyzing water quality samples from those wells.
4. Assess the adequacy of the groundwater quality monitoring well network annually.

### 3.5.3 Land Surface Elevation Monitoring

Subsidence of the land surface resulting from compaction of underlying formations affected by head (water level) decline is a well-documented concern throughout much of the Central Valley. During a typical pumping season, changes in land surface elevation can be observed as a result of both elastic and inelastic subsidence in the underlying basin. Elastic subsidence results from the reduction of pore fluid pressures in the aquifer and typically rebounds when pumping ceases or when groundwater is otherwise recharged resulting in increased pore fluid pressure. Inelastic subsidence occurs when pore fluid pressures decline to the point that aquitard (a clay bed of an aquifer system) sediments collapse resulting in permanent compaction and reduced ability to store water in that portion of the aquifer.

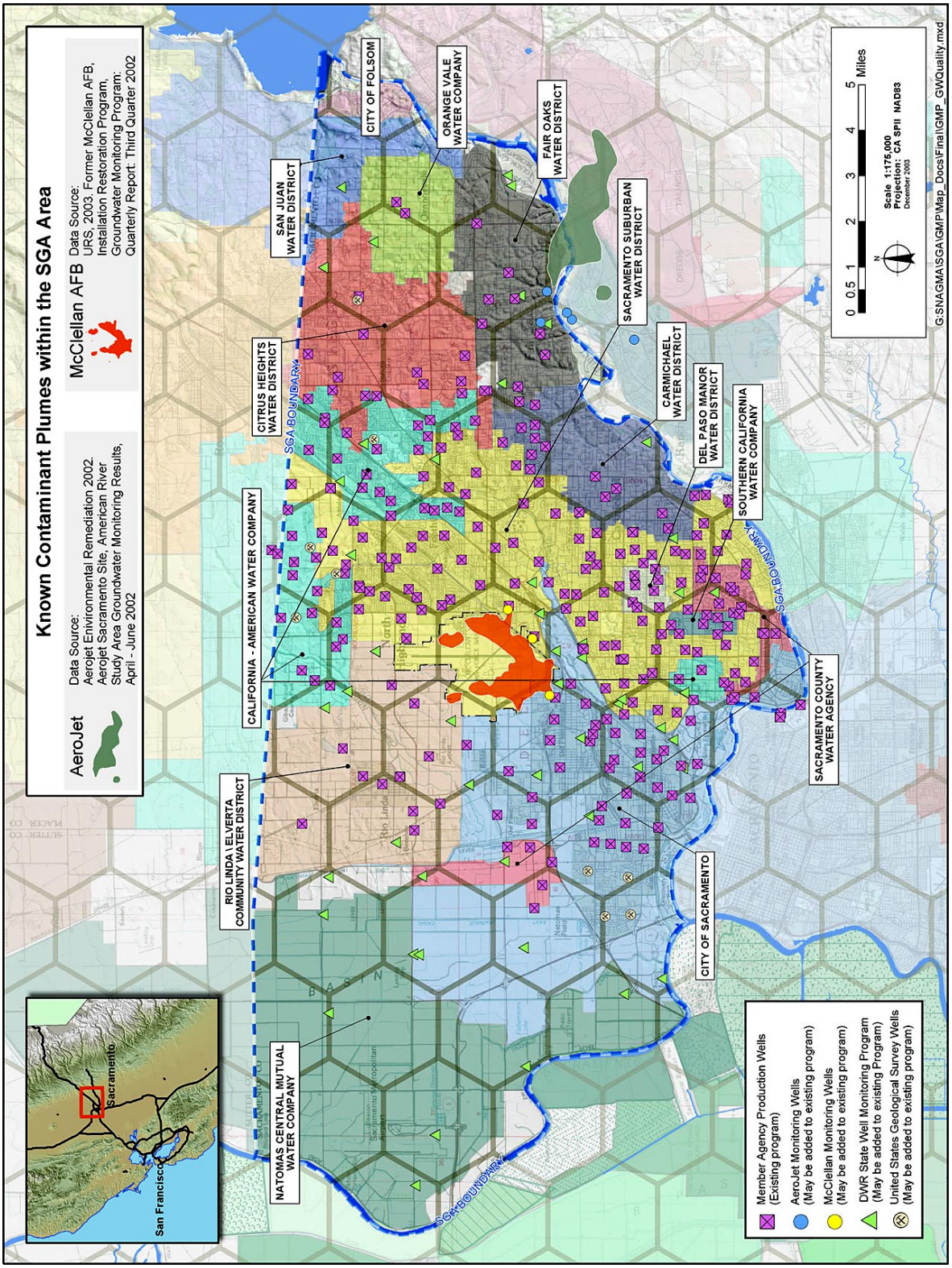


**Figure 13. Existing and Proposed Wells in SGA Groundwater Quality Monitoring Network**

While some land surface subsidence from compaction of water-bearing deposits caused by the removal of groundwater is known to have occurred west of the Sacramento River[16], the extent of subsidence east of the Sacramento River has been minimal. DWR maintains three subsidence monitoring stations in Sacramento Valley. The Sutter Station is located just north of the SGA area, where State Highway 99 crosses the Natomas Cross-Canal **(Figure 12)**. Total subsidence at the Sutter Station from spring 1995 to spring 2003 has been 0.026 feet (0.312 inch)[17]. Total subsidence at the Conaway Ranch Station, located west of the SGA area (**Figure 12**), from spring 1992 to spring 2003 has been 0.044 feet (0.526 inch)[18].

Historical benchmark elevation data for the period from 1912 through the late 1960s obtained from the National Geodetic Survey (NGS) were used to evaluate land subsidence in north Sacramento County. From 1947 to 1969 the magnitude of land subsidence measured at benchmarks north of the American River in Sacramento County ranged from 0.13 feet to 0.32 feet, with a general decrease in subsidence in a northeastward direction. This decrease is consistent with the geology of the area: formations along the eastern side of the Sacramento Valley are older than those on the western side and are subject to a greater degree of pre-consolidation making them less susceptible to subsidence. The maximum documented land subsidence of 0.32 feet was measured at both benchmark L846, located approximately two miles northeast of the former McClellan AFB, and benchmark G846, located approximately one mile northeast of the intersection of Greenback Lane and Elkhorn Boulevard.

Another land subsidence evaluation was performed in the Arden-Arcade area[19] of Sacramento County from 1981 to 1991. Elevations of nine wells in the Arden-Arcade area were surveyed in 1981, 1986, and 1991. The 1986 results were consistently higher than the 1981 results; this was attributed to extremely high rainfall totals in early 1986 that recharged the aquifer and caused a rise in actual land surface elevations. The 1991 results were consistently lower than the 1986 results; this was attributed to five years of drought immediately preceding the 1991 measurements, which caused depletion of the aquifer and resulting land surface subsidence. Comparison of eight[20] of the locations indicates that seven benchmarks have lower elevations in 1991 than in 1981 and one benchmark has a higher elevation in 1991. Of the seven benchmarks with lower elevations in 1991, the maximum difference is 0.073 feet (less than one inch). Whether this is inelastic subsidence is indeterminate from the data, but it is clear that the magnitude of the potential subsidence in the benchmarks during that period is negligible.

***Actions***. While available data and reports indicate that land surface subsidence is not a problem in the SGA area, the SGA is interested in pursuing additional possible actions to continue to monitor for potential land surface subsidence. These may include:

1. Investigate the feasibility and costs of re-surveying the wells in the Arden-Arcade area that were last measured in 1991.

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[16] From 1988-1992 cumulative net sediment compaction of 0.78 feet was measured at the extensometer in Yolo County between June 15, 1988 and October 1, 1992 (USGS data from the Woodland land subsidence monitoring station, Yolo County, California, water years 1988-1992, USGS Open File Report 94-494)

[17] Based on information provided by Central District of DWR to MWH on 12/11/03.

[18] Based on information provided by Central District of DWR to MWH on 12/17/03.

[19] The boundaries of the Arden-Arcade area are (1) Sacramento's city limits on the west, (2) Sacramento's city limits and the American River on the south, (3) CWD on the east, and (4) Sacramento's city limits and Sac Suburban (Northridge Service Area) on the north.

[20] One of the nine wells could not be compared between 1981 and 1991 because the benchmark was destroyed and replaced between 1981 and 1986.

2. Coordinate with the USGS to ascertain the suitability of the use of Interferometric Synthetic Aperture Radar (InSAR) images of the SGA and surrounding area. If the technology appears suitable, identify the costs of determining ground surface elevations and identify potential cost-sharing partners.
3. Coordinate with other agencies, particularly the City and County of Sacramento and the NGS to determine if there are other suitable benchmark locations in the SGA area to aid in the analysis of potential land surface subsidence.
4. Educate SGA member agencies of the potential for land surface subsidence and signs that could be indicators of subsidence.

### 3.5.4 Surface Water Groundwater Interaction Monitoring

The interaction between groundwater and surface water has not been extensively evaluated within the SGA area. The SGA is currently aware of the following:

- A recent draft decision by the State Water Resources Control Board (SWRCB, 2003) regarding the American River, the SWRCB concluded that from Nimbus Dam to about 6,000 feet below the dam, groundwater elevations and surface water elevations were similar enough to each other that groundwater could be tributary to the American River. Beyond 6,000 feet down reach from Nimbus Dam, groundwater elevations are sufficiently lower than the river channel to conclude that the American River is a losing reach down to the confluence with the Sacramento River.
- Groundwater modeling (described in **Section 3.8.1**) has been used to estimate flow volumes between surface water and groundwater for various hydrologic conditions.
- CSUS in cooperation with DWR has recently installed several monitoring wells in and adjacent to the American River to investigate groundwater interaction with the American River and how recent USACE levee reinforcement projects might have changed the surface water-groundwater flow relationships.
- In 1991, Sacramento Regional County Sanitation District (SRCSD), Sacramento County, and Sacramento established the Sacramento Coordinated Water Quality Monitoring Program (CMP). Since that time, the CMP has monitored surface water quality for a variety of constituents including trace elements at several locations on the American River and Sacramento River. Within the SGA area, the CMP monitors the Sacramento River at the Interstate 5 Veteran Memorial Bridge, and the American River at Nimbus Dam and at Discovery Park.

***Actions.*** The SGA will pursue actions to better understand the relationship between surface and groundwater in the SGA area, including:

1. Compile available stream gage data and information on tributary inflows and diversions from the American and Sacramento rivers to quantify net groundwater recharge or discharge between gages in the SGA area.
2. Coordinate with local, state, and federal agencies to identify available surface water quality data from the American and Sacramento rivers adjacent to the SGA area.
3. Correlate groundwater level data from wells in the vicinity of river stage data to further establish whether the river and water table are in direct hydraulic connection, and if the surface water is gaining or losing at those points.

4. Continue to coordinate with local, state, and federal agencies and develop partnerships to investigate cost-effective methods that could be applied to better understand surface water-groundwater interaction along the Sacramento and American rivers.
5. Coordinate with CSUS to analyze data obtained from recently constructed monitoring wells on the CSUS campus to better understand the relationship between the groundwater basin and surface water flows at that location.

### 3.5.5 Protocols for the Collection of Groundwater Data

The SGA has evaluated the accuracy and reliability of groundwater data collected by member agencies (MWH, 2002). The evaluation indicated a significant range of techniques, frequencies and documentation methods, for the collection of groundwater level and groundwater quality data. Although the groundwater data collection protocol may be adequate to meet the needs of the individual water districts, the lack of consistency between districts in the past yields an incomplete picture of basin-wide groundwater conditions. Other types of groundwater data collection protocols are included in **Sections 3.5.1** and **3.5.2** above.

***Actions.*** To improve the comparability, reliability and accuracy of groundwater data, the SGA take the following actions:

1. Use a Standard Operating Procedure (SOP) for collection of water level data by each of the member agencies. **Appendix D** includes an SOP for Manual Water Level Measurements. This SOP was prepared using guidance documents available through USEPA and was included in the SGA technical memorandum summarizing the accuracy and reliability of groundwater data (MWH, 2002).
2. Provide member agencies with guidelines on the collection of water quality data developed by DHS for the collection, pretreatment, storage, and transportation of water samples (DHS, 1995).
3. Provide training on the implementation of these SOPs to member agencies, if requested.

### 3.5.6 Data Management System

The SGA membership includes 14 public agency and investor-owned water purveyors. Historically, the member agencies have maintained a varying range of groundwater-related data in a wide variety of formats. In order for the SGA to achieve its primary objective of sustaining the groundwater resource of the North Area Groundwater Basin, it was essential to develop a data storage and analysis tool, the DMS. The DMS was developed by MWH under contract with the USACE. Other local sponsors included DWR and the SGA.

Development of the DMS is a two-phase project. Phase I was completed in January 2003 and included initial development of the user interface and population of the DMS to a demonstration level of approximately one-fourth of the water purveyor wells. Phase II, to be completed by January 31, 2004, will fully populate the database and add further customization of the user interface with additional analysis features. Once the DMS is fully populated and quality-control checked a summary of existing basin conditions will be prepared. From this initial summary, analyses will be performed on at least an annual basis to assess the impacts of current and future SGA management actions on the groundwater system.

The DMS is a public domain application developed in a Microsoft Visual Basic environment and is linked to a SQL database of the SGA purveyor data. The DMS provides the end-user with ready access to both enter and retrieve data in either tabular or graphical formats. Security

features in the DMS allow for access restrictions based on a variety of user permission levels. Data in the DMS include:

- Well construction details.
- Known locations of groundwater contamination and potentially contaminating activities.
- Long-term monitoring data on:
  - Monthly extraction volumes.
  - Water elevations.
  - Water quality.
- Aquifer characteristics based on well completion reports.

The DMS allows for the viewing of regional trends in water level and water quality not previously available to the SGA (see **Figure 14** for a DMS screen capture). The DMS has the capability of quickly generating well hydrographs and groundwater elevation contour maps using historic groundwater level data. The DMS also has the ability to view water quality data for Title 22 required constituents as a temporal concentration graph at a single well or any constituent can be plotted with respect to concentration throughout the SGA area. Presentation of groundwater elevation data and groundwater quality data in these ways will be useful for making groundwater basin management decisions.

The SGA is currently in the process of establishing data transfer protocols so that groundwater data within the SGA area (by member agencies, DWR, AFRPA, USGS, etc…) can be readily appended to the database and analyzed through the DMS. Annual summaries of groundwater monitoring data will be prepared using the analysis tools in the DMS and presented in the update to the State of the Basin report (see **Section 4**).

***Actions.*** To maintain and improve the usability of the DMS, the SGA will take the following actions:

1. Continue to update the DMS with current water purveyor data.
2. Make recommendations to the DMS developer on utilities to add to the DMS to increase its functionality.

## 3.6 COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION

The SGA considers groundwater protection to be one of the most critical components of ensuring a sustainable groundwater resource. In this GMP, resource protection includes both prevention of contamination from entering the groundwater basin and remediation of existing contamination. Prevention measures include proper well construction and destruction practices, development of wellhead protection measures, and protection of recharge areas. Containment and remediation include measures to prevent contamination from human activities as well as contamination from natural substances such as saline water bodies.

### 3.6.1 Well Construction Policies

The Sacramento County Environmental Management Department (EMD) administers the well permitting program for Sacramento County. The standards for construction are identified in Sacramento County Code No. SCC-1217 as amended on April 9, 2002. In addition to general well construction standards, Sacramento County has a policy of special review by appropriate regulatory agencies for well permits within 2,000 feet of a known contaminant plume (referred to

as Consultation Zones) and prohibits the drilling of new public supply wells at the former McClellan AFB. As part of the development of the DMS, the most recent extents of known contaminant plumes associated with the former McClellan AFB, the former Mather AFB, and Aerojet were delineated for the SGA.

***Actions.*** The SGA will take the following actions:

1. Ensure that all member agencies are provided a copy of the county well ordinance and understand the proper well construction procedures.
2. Inform member agencies of Sacramento County's Consultation Zone and provide a copy of the boundary of the former McClellan AFB prohibition zone to appropriate member agencies.
3. Provide a copy of the most recently delineated plume extents at the former McClellan AFB, the former Mather AFB, and Aerojet to the EMD and SGA members for their review and possible use.
4. Coordinate with member agencies to provide guidance as appropriate on well construction. Where feasible and appropriate, this could include the use of subsurface geophysical tools prior to construction of the well to assist in well design.

### 3.6.2 Well Abandonment and Well Destruction Policies

The EMD administers the well destruction program for Sacramento County. The standards for construction are identified in Sacramento County Code No. SCC-1217 as amended on April 9, 2002. One concern expressed by the EMD[21] is that many abandoned domestic wells have not been properly destroyed. Historically, the north part of Sacramento County has been served by organized water districts, so there are not many privately owned domestic wells. As part of development of the DMS, DWR well records for all known wells in the basin were reviewed for reported abandonment and destruction. The wells were rated for the confidence of proper destruction based on the information provided on the report. This information was entered into the DMS. It is the SGA's opinion that the database as it currently stands, accurately reflects documented well destruction activities within the SGA area. The actions listed below will provide improved protection of groundwater quality within the SGA area.

***Actions.*** The SGA will take the following actions:

1. Ensure that all member agencies are provided a copy of the code and understand the proper destruction procedures and support implementation of these procedures.
2. Follow up with member agencies on the reported abandoned and destroyed wells to confirm the information collected from DWR.
3. Provide a copy of the information on abandoned and destroyed wells in northern Sacramento County to fill any gaps in their records.
4. Meet with the EMD to discuss ways to ensure that wells in the SGA area are properly abandoned or destroyed.
5. Obtain "wildcat map from California Division of Oil and Gas to ascertain the extent of historic gas well drilling operations in the area as these wells could function as conduits of contamination if not properly destroyed.

[21] Faith King, pers. comm., August 11, 2003.

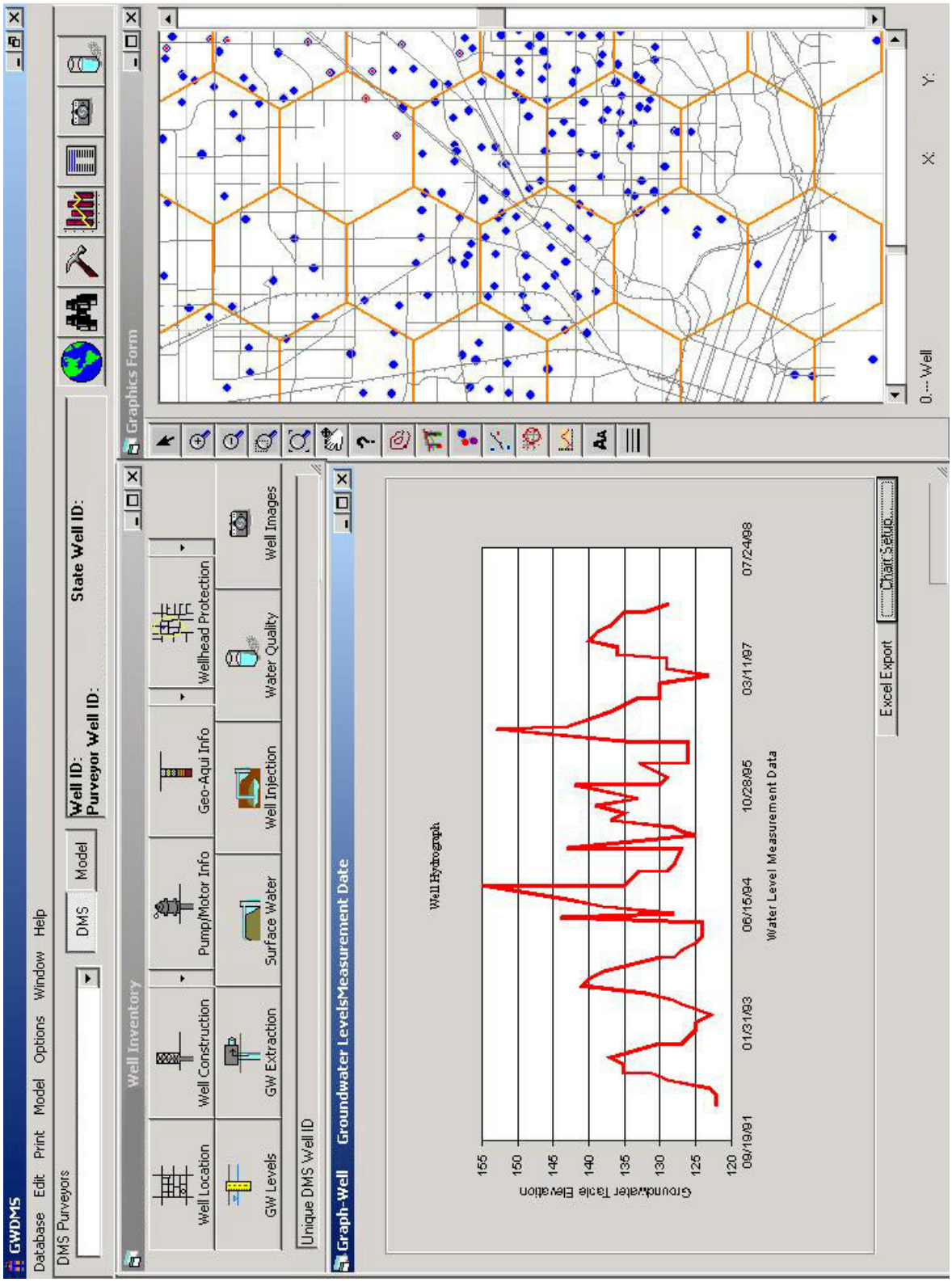


**Figure 14. DMS Screen Capture**

### 3.6.3 Wellhead Protection Measures

Identification of wellhead protection areas is a component of the Drinking Water Source Assessment and Protection (DWSAP) Program administered by DHS. DHS set a goal for all water systems statewide to complete Drinking Water Source Assessments by mid-2003. All SGA member agencies have completed their required assessments by performing the three major components required by DHS:

- Delineation of capture zones around sources (wells).
- Inventory of Potential Contaminating Activities (PCAs) within protection areas.
- Vulnerability analysis to identify the PCAs to which the source is most vulnerable.

Delineation of capture zones includes using groundwater gradient and hydraulic conductivity data to calculate the surface area overlying the portion of the aquifer that contributes water to a well within specified time-of-travel periods. Typically, areas are delineated representing 2-, 5-, and 10-year time-of-travel periods. These protection areas need to be managed to protect the drinking water supply from viral, microbial, and direct chemical contamination.

Inventories of PCAs include identifying potential origins of contamination to the drinking water source and protection areas. PCAs may consist of commercial, industrial, agricultural, and residential sites, or infrastructure sources such as utilities and roads. Depending on the type of source, each PCA is assigned a risk ranking, ranging from "very high" for such sources as gas stations, dry cleaners, and landfills, to "low" for such sources as schools, lakes, and non-irrigated cropland.

Vulnerability analysis includes determining the most significant threats to the quality of the water supply by evaluating PCAs in terms of risk rankings, proximity to wells, and Physical Barrier Effectiveness (PBE). PBE takes into account factors that could limit infiltration of contaminants including type of aquifer, aquifer material (for unconfined aquifers), pathways of contamination, static water conditions, hydraulic head (for confined aquifers), well operation, and well construction. The vulnerability analysis scoring system assigns point values for PCA risk rankings, PCA locations within wellhead protection areas, and well area PBE; the PCAs to which drinking water wells are most vulnerable are apparent once vulnerability scoring is complete.

The SGA has already added PCA and capture zone information from the DWSAP into the DMS. The DMS includes a feature that will automatically calculate wellhead protection areas if no data are available or if new well locations are proposed.

***Actions.*** The SGA will take the following actions:

1. Request that member agencies provide vulnerability summaries from the DWSAP to the SGA to be used for guiding management decisions in the basin.
2. Contact groundwater basin managers in other areas of the state for technical advice, effective management practices, and "lessons learned," regarding establishing wellhead protection areas.

### 3.6.4 Protection of Recharge Areas

The SGA has also evaluated surface geology within and directly adjacent to its boundary for the purpose of delineating areas of potentially high recharge rates. Surface geology and estimates of relative recharge rates are shown on **Figure 15**. Much of the surface area considered to have the highest potential for recharge is already developed, so opportunities to ensure protection of these areas are somewhat limited.

Recently, most members of the SGA participated in the California Aquifer Susceptibility (CAS) Study administered by the SWRCB. Objectives of this study included sampling for many known contaminants at low detection levels to act as early indicators of potential problems particularly in recharge areas of aquifers. The results of this study are not yet available.

***Actions.*** The SGA will take the following action:

1. When CAS results are available, meet with the SWRCB to discuss those results and consider follow-on actions.

### 3.6.5 Control of the Migration and Remediation of Contaminated Groundwater

The migration of contaminated groundwater in the SGA area is of primary concern from the McClellan AFB and Aerojet groundwater contamination plumes as shown in **Figure 4**. Also of concern is the localized contamination of groundwater by industrial point sources such as dry cleaning facilities and numerous fuel stations throughout the SGA area.

While the SGA does not have authority or the responsibility for remediation of this contamination, it is committed to coordinating with responsible parties and regulatory agencies to keep SGA members informed on the status of known contamination in the basin. For example, the SGA has requested and entered into its DMS a coverage of known LUSTs within the basin. This information is maintained by the SWRCB and CVRWQCB. Also, the SGA has been in communication with the AFRPA, which is overseeing remediation efforts at McClellan AFB (see **Section 3.4.2**).

***Actions.*** The SGA will take the following actions:

1. Coordinate with known responsible parties to develop a network of monitoring wells to act as an early warning system for public supply wells.
2. If detections occur in these monitoring wells, facilitate meetings between the responsible parties and the potentially impacted member agency to develop strategies to minimize the further spread of contaminants. An example of a strategy would be to consider altering groundwater extraction patterns in the area to change to groundwater gradient.
3. Provide SGA members with all information on mapped contaminant plumes and LUST sites for their information in developing groundwater extraction patterns and in the siting of future production or monitoring wells.
4. Meet with representatives of the CVRWQCB to establish a mutual understanding about the SGA's groundwater management responsibilities. Identify ways to have open and expedient communication with CVRWQCB regarding any new occurrences of LUSTs, particularly when contamination is believed to have reached the water table.

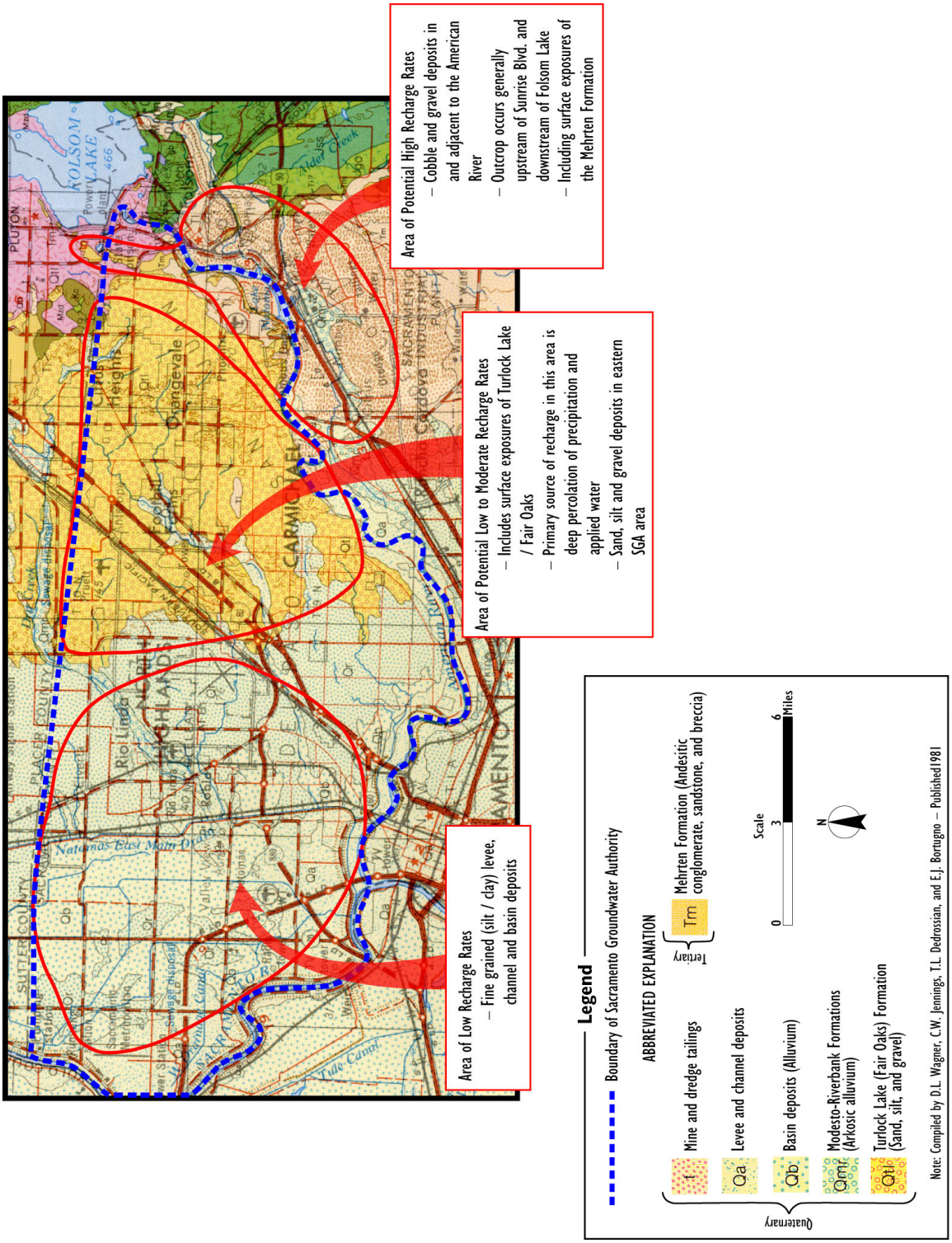


**Figure 15. Surface Geology of the SGA Area – Implications for Surface Recharge Rates**

### 3.6.6 Control of Saline Water Intrusion

Saline water intrusion from the Sacramento/San Joaquin River Delta (Delta) is not currently a problem in Sacramento County as a whole or in the North Area Groundwater Basin, and it is not expected to become a problem in the future. Higher groundwater elevations associated with recharge in the American and Sacramento rivers have maintained a historical positive gradient preventing significant migration of any saline water bodies associated with the Delta from migrating east into the Sacramento County region. These groundwater gradients will continue to serve to prevent any localized pumping depressions in the basin from inducing flow from the Delta into the North Area Groundwater Basin.

A more local source of saline water is beneath the base of fresh water in the North Area Groundwater Basin. Berkstresser (1973) mapped the base of fresh water (the point below which the specific conductivity of the water is greater than about 3,000 micromhos per centimeter (μmhos/cm)) for the Sacramento Valley. For the North Area Groundwater Basin, the minimum depth of fresh water is at an elevation of about 800 feet below mean sea level near the eastern basin margin and increases to a depth of approximately 2,000 feet below mean sea level on the western margin of the basin. The municipal suppliers in the North Area Groundwater Basin generally extract groundwater from depths of less than 500 feet, so their extractions are a substantially above the base of fresh water. Therefore, current pumping practices would not be expected to create a situation where deeper saline water is being drawn into the fresh water aquifer.

***Actions.*** The SGA will take the following actions:

1. Track the progression, if any, of saline water bodies moving toward the east from the Delta. Because this is a highly unlikely scenario, this action will be limited to communicating with DWR's Central District Office on a biennial basis to check for significant changes to TDS concentrations in wells. DWR has a regular program of sampling water quality in select production wells throughout the adjacent Solano, San Joaquin, and Yolo counties. This will serve as an early warning system for the potential of saline water intrusion from the Delta.
2. Observe TDS concentrations in public supply wells of North Area Groundwater Basin water suppliers that are routinely sampled under the DHS Title 22 Program. These data will be readily available in the SGA's DMS and are already an on-going task for the annual review of basin conditions.
3. Inform all member water purveyor managers of the presence of the interface and the approximate depth of the interface below their service area for their reference when siting potential wells. The SGA will also ensure that the EMD, which issues well permits, is aware of the interface. The SGA will provide a map indicating the contour of the elevation of the base of fresh water in Sacramento County to the EMD for their reference when issuing well permits.

## 3.7 COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY

To ensure a long-term viable supply of groundwater, SGA members are seeking to maintain or increase the amount of groundwater stored in the basin over the long-term. The WFA's groundwater management element provides a framework by which the groundwater resource in the Sacramento County-wide area can be protected and used in a sustainable manner. It recommends an average annual sustainable groundwater yield within the SGA area of 131,000

AF/year. As documented in **Section 2** of the GMP, historic groundwater extractions have resulted in a net depletion of groundwater stored under the SGA area. To ensure a sustainable resource, SGA and RWA members have undertaken several actions toward increased conjunctive use of groundwater and surface in the basin and will continue to do so. Historically, water purveyors in the basin away from the rivers did not have access to surface water and a large cone of depression resulted in the middle of the SGA area. Recent conjunctive use activities have resulted in providing new surface water supplies to these areas. Although water purveyors in the region will rely more heavily on groundwater during dry periods, the net increase in available surface will result in a maintained or improved amount of groundwater in storage in the basin over the long term.

Two primary activities will result in an improved ability to sustain the viability of the groundwater resource for the region. Conjunctive management activities include the planning and construction of facilities to increase the available water supply to the area as well as to create opportunities for the banking and exchange of water with partners after local needs are met. These partnerships will result in some of the necessary capital improvements to help sustain the resource in a cost-effective way. Additionally, the SGA's ability to sustain the groundwater resource will be met in part through reductions in potable water demand through conservation measures and through the use of recycled water for landscape irrigation supply. These groundwater sustainability activities are discussed below.

### 3.7.1 Conjunctive Management Activities

The SGA and RWA members are committed to expanded conjunctive use operations and are investigating a variety of ways of recharging water into the available storage space in the basin. Opportunities for direct recharge from overlying land in the basin are limited, because much of the land is developed or is overlain by flood basin deposits. Most of the recharge occurring through current conjunctive use is from in-lieu recharge. One component of the RWA ARBCUP (see below) is an aquifer storage and recovery well, which will inject water just north of the basin. Current and potential future facilities in the basin are further described in the Cooperating Agencies RWMP Phase II Final Report (MWH, 2003).

***Cooperating Agencies RWMP.*** As discussed in **Section 2.5**, Phase I of the RWMP identified and described a "menu" of project and program alternatives for implementing the WFA north of the American River. Phase II provided detailed hydrologic, engineering, and legal/institutional evaluations of those projects and programs that best aligned with the goals and objectives of the individual water purveyors and the WFA. The recommendations resulting from Phase II were used to structure the SGA and RWA's regional projects and programs.

***Sac Suburban's Groundwater Stabilization Project.*** This project allows groundwater elevations underlying the SGA area to increase naturally (in-lieu recharge) by providing up to 29,000 AF of surface water per year to an area that has historically relied on groundwater. From 1998 through 2001, Sac Suburban utilized an annual average of about 12,850 AF of surface water, reducing its use of groundwater and resulting in stabilization of groundwater elevations that had been declining historically at a rate of about 1.5 feet per year (LSCE, 2002). This project is a prime example of the types of activities to be included in a conjunctive use program envisioned in the WFA.

***RWA ARBCUP.*** The objective of the RWA ARBCUP is to implement elements of the regional conjunctive use program developed in the Cooperating Agencies RWMP. Through the RWA ARBCUP, treated surface water will be delivered to areas that have historically used

groundwater in wet years, resulting in in-lieu recharge. In dry years, the stored water will be recovered in areas that have historically used surface water, allowing forbearance of surface water diversions.

The RWA ARBCUP will provide an additional average water supply yield in the region of 21,400 AF/year. Projects such as these strongly support the goal and objectives of the SGA's GMP. The project consists of 12 program components (see **Table 5** and **Figure 7**) constructed by seven public agencies. Facilities include an expansion of surface water treatment plant capacity, water transmission system improvements (including pipelines, a pump station, and an aboveground water storage tank for flow equalization), groundwater extraction wells, and meter replacements. In 2001, the RWA submitted a grant application to DWR for a groundwater storage construction grant and was subsequently awarded $21.67 million. The RWA member agencies are matching the grant with local funds to construct the project.

***SGA-SAFCA Pilot Study.*** In 1999/2000, a pilot study was conducted with SAFCA and Reclamation as a means of exercising the groundwater storage potential resulting form the regional cone of depression and investigating the mechanics of a large-scale conjunctive use program. In this pilot study, an on-call surface water supply was provided to SAFCA. Specifically, SAFCA diverted and stored (banked) 2,100 AF of water in the basin. The following year, surface water in the amount of 1,995 AF was made available by exchange through the extraction of groundwater in-lieu of diverting a CVP supply from Folsom Reservoir. SAFCA used this water on an as-needed basis to satisfy its refill obligations associated with flood management reservation in Folsom Reservoir.

***EWA Pilot Study.*** In 2002, the SGA conducted an expanded pilot study. It entered into an agreement with Reclamation (on behalf of the EWA) for the one-year sale of up to 10,000 AF of surface water. A portion of this surface water (up to 5,000 AF) was made available in Folsom Reservoir through a transfer of a portion of SJWD's CVP contract entitlement. The other 5,000 AF was made available by Sacramento through forbearance of a surface water diversion right on the lower American River. In both cases, local demand was met by recovery of previously banked groundwater.

***Actions.*** The SGA will take the following actions:

1. Continue to investigate conjunctive use opportunities within the SGA area. The SGA and its members will coordinate with the RWA and its members, as appropriate.
2. Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. injection wells or surface spreading facilities, through constructed recharge basins or in river or streambeds).

### 3.7.2 Demand Reduction

Another way to stay within the sustainable yield of the basin and continue to achieve in-lieu recharge is by reducing demand on potable water supplies through conservation and by making recycled water available for irrigation of landscaping.

***Water Conservation***. The RWA has developed and implemented a regional Water Efficiency Program (WEP). The WEP assists members to meet their water conservation agreements with the Water Forum, the California Urban Water Conservation Council, and for some members the Central Valley Project Improvement Act (CVPIA). The water conserved as part of this effort is essential to the Water Forum's ability to meet its objectives of providing a safe, reliable water supply to 2030 and protecting the lower American River in two ways. First,

the conserved water will serve to meet increased future demands. Second, the conserved water will reduce the overall demand on the groundwater basin in drier years and can reduce the demand for water diverted from the lower American River. The goal of the WFA is to achieve system-wide conservation of slightly more than 25 percent by the year 2030.

SGA members have also implemented other conservation measures outside of the WFA. One example is in NCMWC's tailwater recovery system implemented in 1986. The program achieves conservation through the reapplication of water that runs off of agricultural fields within the NCMWC system. The system also results in reduced runoff of agricultural applied water to the Sacramento River thereby decreasing agricultural pesticides that would have been in the river.

***Water Recycling***. SRCSD treats wastewater for the Sacramento region at its Elk Grove Wastewater Treatment Plant and is looking for ways to increase the delivery of recycled from the plant to landscape irrigation uses. SRCSD joined the RWA as an associate member in September 2003. By joining the RWA, SRCSD can work closely with other member agencies to investigate opportunities to use recycled water throughout the area to more effectively develop the regional water supply. Currently, SRCSD is recycling 5 mgd at its Elk Grove facility and delivering it to nearby landscape irrigation users. SRCSD expects the capacity of that facility to increase to 10 mgd over the next few years. Currently, recycled water is only delivered to users south of the SGA area. SRCSD is investigating ways to deliver recycled water north of the American River in the future.

***Actions.*** The SGA will take the following actions:

1. Coordinate with the RWA and its members that have signed specific agreements to the WFA to ensure that those conservation efforts are on track. For members that are not signatory, the SGA will ensure that they are informed of the benefits and regional importance of RWA's WEP.
2. Coordinate with SRCSD through the RWA to investigate opportunities for expanded use of recycled water throughout the county.

## 3.8 COMPONENT CATEGORY 5: PLANNING INTEGRATION

With the large number of autonomous water agencies and companies serving the greater Sacramento area, the need to integrate water management planning on a regional scale is a high priority and was one of the key reasons that the RWA and SGA organizations were formed. Individual members derive their supplies from the American River, the Sacramento River, the North Area Groundwater Basin, or some mix of these sources. Individual agency infrastructure systems are mostly independent; where interconnections do exist between agencies, they are typically for emergency purposes only.

The WFA provides a regional conjunctive use framework with commitments from individual agencies concerning groundwater and surface water operations, including limitations on surface water diversions from the lower American River during dry years. The SGA and RWA planning efforts seek to better integrate the individual plans of member agencies to implement various elements of the WFA in keeping with the 2030 regional framework. Such integration also promotes operational efficiency, cost savings, and in some cases generates larger statewide-system benefits. For example, the 2002 SGA partnership with Reclamation to provide water to the EWA involved integrating plans and operational actions of five SGA member agencies to produce over 7,000 AF of water in Folsom Reservoir for EWA purposes. The SGA provided the institutional and contractual mechanisms to ensure that individual agencies implemented the

operational changes necessary to produce the water and to ensure that the quality and yield of the groundwater basin was protected.

The RWA, which is better positioned to facilitate integrated planning because of its greater geographic extent (Sacramento, Placer, and El Dorado counties), is actively implementing the ARBCUP and plans to implement the follow-on program to the Cooperating Agencies RWMP. In addition, the RWA has implemented a regional WEP, a program to coordinate the development of agency drinking water source assessment and protection documents, and is actively coordinating with regional land use planning agencies regarding the availability of future water supplies to support planned growth.

### 3.8.1 Existing Integrated Planning Efforts

The SGA and RWA have already demonstrated implementation of integrated management in the region. Some of the integrated planning efforts to date are listed below.

***Water Efficiency Program.*** Described in **Section 3.7.2**

***Banking and Exchange.*** Described in **Section 3.4.4**

***Urban Water Management Planning.*** Twelve SGA members are required to prepare Urban Water Management Plans. These plans, as defined by CWC § 10610 *et seq.*, require public water suppliers with more than 3,000 customers or that deliver more than 3,000 AF of water annually to identify conservation and efficient water use practices to help ensure a long-term, reliable water supply. To date, all 12 members have submitted plans to DWR. Ten of the plans have been approved by DWR. One additional plan has been resubmitted and is under review by DWR. One plan is currently being amended by the member agency.

***Regional Sanitation.*** Described in **Section 3.7.2**

***DWSAP Program.*** The DWSAP Program is administered by DHS. As a first step to a complete source protection program, DHS required water systems to conduct a preliminary assessment. The assessment includes:

> "delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of possible contaminating activities (PCAs) that might lead to the release of microbiological or chemical contaminants within the delineated area; and a determination of the PCAs to which the drinking water source is most vulnerable (http://www.dhs.ca.gov/ps/ddwem/dwsap/overview.htm)."

The assessments only apply to agencies that deliver groundwater for public drinking supply. All of the 11 SGA member agencies required to submit assessments have done so. Data from the assessments have been incorporated into the SGA's DMS.

***Land Use Planning.*** In March 2002, the Water Forum Successor Effort approved a set of procedures for coordinating land use decision-making with water resources planning. As signatories to the WFA, the SGA members are committed to following the procedures outlined in **Appendix E**. In addition, the SGA will assist members in complying with these procedures. Through the RWA, better coordination and communication have been initiated with the Sacramento Area Council of Governments (SACOG) regarding meeting the water supply needs of future planned growth.

***Integrated Surface Water and Groundwater Modeling.*** The SGA is interested in using and building upon existing groundwater models for the SGA area. In the late 1990s, a range of groundwater extraction and recharge scenarios were simulated using the North American River

and Sacramento County Combined Integrated Groundwater and Surface Water Model (IGSM[22]). This model was originally developed for the American River Water Resources Investigation (ARWRI) conducted by Reclamation and later updated by the Cooperating Agencies for their RWMP effort (see **Appendix F**).

The original version of IGSM used for the study originated from the ARWRI version of the model used for the "Draft Water Forum Solution Model" developed for the Water Forum. The purpose of the Water Forum was development of a conjunctive use strategy for the groundwater basin underlying northern Sacramento County and southern Placer County.

The SGA is interested in maintaining and updating the IGSM because it is the basis for the WFA and the Cooperating Agencies RWMP alternative analyses, and because it is the model used for regional planning by Reclamation and DWR for projects such as the ARWRI, the CVPIA, and the CALFED process.

The SGA recently completed a study in cooperation with DWR that focused on updating the Calibration Model. The objectives of this effort were to convert the existing IGSM input files to run in the most current version of IGSM (version 6.0). Historical water budgets from 1969 to 1995 were developed and a comparison of model results with actual measured values for groundwater elevations and streamflows over the calibration period were provided. The SGA is pursuing having the calibration period extended from 1995 to 2000.

***Actions.*** The SGA will take the following actions:

1. Prepare and adopt a formal integrated water management plan in accordance with CWC § 10540 *et seq*. The plan will include, but not be limited to, the elements listed above. The SGA will form an ad hoc committee with the RWA to determine which agency would be most appropriate to prepare that plan.
2. Review the Water Forum Land Use procedures and make recommendations on what additional role, if any, the SGA should take with respect to land use decisions within the SGA area.

[22] The IGSM is a finite element, quasi three-dimensional, multi-layered model that integrates surface water and groundwater on a monthly time step. The IGSM was developed for use as a regional planning tool for large areas influenced by both surface water and groundwater. The tool is well-equipped to accommodate input and output of land use and water use data over large areas. Data input includes hydrogeologic parameters, land use, water demand, precipitation and other hydrologic parameters, boundary inflows, and historical water supply. For purposes of parameter definition and developing water budgets around physical and/or political boundaries, the IGSM divides Sacramento, Placer, Sutter, and San Joaquin counties into subregions. Each subregion is further divided into unique numbered elements varying from 200 to 800 acres in size. Overlying this grid is a coarse parametric grid utilized for specifying aquifer and other parameters.

# 4 PLAN IMPLEMENTATION

**Table 6** summarizes the action items presented in **Section 3** and an implementation schedule. Many of these actions involve coordination by the SGA with other local, state and federal agencies and most of these will begin within 6 months, following adoption of this GMP. A few activities involve assessing trends in basin monitoring data for the purpose of determining the adequacy of the monitoring network. These assessments will be made as new monitoring data become available for review by the SGA, and results will be documented in an annual State of the Basin report (see below).

## 4.1 ANNUAL GMP IMPLEMENTATION REPORT

The SGA will report on progress made implementing the GMP in an annual State of the Basin report, which will summarize groundwater conditions in the SGA area and document groundwater management activities from the previous year. This report will include:

- Summary of monitoring results, including a discussion of historical trends.
- Summary of management actions during the period covered by the report.
- A discussion, supported by monitoring results, of whether management actions are achieving progress in meeting BMOs.
- Summary of any plan component changes, including addition or modification of BMOs, during the period covered by the report.

The State of the Basin report will be completed by April 1st each year and will report on conditions and activities completed through December 31st of the prior year.

## 4.2 FUTURE REVIEW OF GMP

This GMP is intended to be a framework for the first regionally-coordinated management efforts in the SGA area. As such, many of the identified actions will likely evolve as the SGA actively manages and learns more about the basin. Many additional actions will also be identified in the annual summary report described above. The GMP is therefore intended to be a living document, and it will be important to evaluate all of the actions and objectives over time to determine how well they are meeting the overall goal of the plan. The SGA plans to evaluate this entire plan within five years of adoption.

## 4.3 FINANCING

It is envisioned that implementation of the GMP, as well as many other groundwater management-related activities will be funded from a variety of sources including the SGA; in-kind services by member agencies; state or federal grant programs; and local, state, and federal partnerships. Some of the items that would likely require additional resources include:

- Monitoring for groundwater quality or elevations in non-purveyor wells.
- Customization of the DMS interface.
- Preparation of GMP annual reports.
- Updates of the overall GMP.
- Update of data sets and recalibration/improvement of existing groundwater model.

- Collection of additional subsidence data.
- Construction of monitoring wells where critical data gaps exist.
- Stream-aquifer interaction studies.
- Implementation of the GMP including:
    - Committee coordination.
    - Project management.
- Implementation of regional conjunctive use program.

During year one of plan implementation, an estimate of some of the likely costs associated with the above activities will be prepared.

# Table 6. Summary of GMP Actions

| | Description of Action | Implementation Schedule (approximate time for commencing activity following adoption of GMP) |
|---|---|---|
| **I.** | **COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT** | |
| | ***Involving the Public*** | |
| 1 | Continue efforts to encourage public participation as opportunities arise. | on-going |
| 2 | Review and take actions from the public outreach plan as necessary during implementation of various aspects of the GMP. | on-going |
| 3 | Provide briefings to the Water Forum Successor Effort on GMP implementation progress. | on-going |
| 4 | Work with members to maximize outreach on GMP activities including the use of the SGA Web site, member Web sites, or bill inserts. | 12 months |
| | ***Involving Other Agencies Within and Adjacent to the SGA Area*** | |
| 1 | Continue high level of involvement demonstrated through the SGA GMP development into implementation of the plan by continued participation on committees described above. | on-going |
| 2 | Provide copies of the adopted GMP and subsequent annual reports to representatives from Placer, Sutter, and Yolo counties, and the Groundwater Forum. | 3 months |
| 3 | Meet with representatives from Placer, Sutter, and Yolo counties, and the Groundwater Forum as needed. | 6 months |
| 4 | Coordinate a meeting with the agricultural groundwater pumpers in the SGA area to inform them of SGA's management responsibilities and activities, and develop and develop a list of agricultural groundwater pumpers concerns and needs relative to SGA's management of the area. | 6 months |
| 5 | Coordinate a meeting with other self-supplied pumpers in the SGA area to inform them of SGA's management responsibilities and activities, and develop a list of self-supplied groundwater pumpers concerns and needs relative to SGA's management of the area. | 6 months |
| | ***Utilizing Advisory Committees*** | |
| 1 | Upon adoption of the GMP, the Policy Committee will meet to discuss the continuation and composition of committees to guide implementation of the plan. | 3 months |
| | ***Developing Relationships with State and Federal Agencies*** | |
| 1 | Continue to develop working relationships with local, state, and federal regulatory agencies. | on-going |
| | ***Pursuing Partnership Opportunities*** | |
| 1 | Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits. | on-going |
| 2 | Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects. | on-going |
| **II.** | **COMPONENT CATEGORY 2: MONITORING PROGRAM** | |
| | ***Groundwater Elevation Monitoring*** | |
| 1 | Coordinate with member agencies and DWR to identify an appropriate group of wells for monitoring for a spring 2004 set of groundwater elevation measurements. | 3 months |
| 2 | Coordinate with DWR and SCWA to ensure that the selected wells are maintained as part of a long-term monitoring network. | 3 months |
| 3 | Coordinate with DWR and SCWA to ensure that the timing of water level data collection by member agencies coincides within one month of DWR and SCWA data collection. | 3 months |
| 4 | Coordinate with member agencies to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies. | 3 months |
| 5 | Coordinate with the USGS to determine the potential for integrating USGS monitoring wells constructed for the National Water Quality Assessment (NAWQA) Program into the SGA monitoring network. | 3 months |
| 6 | Consider ways to fill gaps in the monitoring well network by identifying additional suitable existing wells or identifying opportunities for constructing new monitoring wells. | 3 months |
| 7 | Assess groundwater elevation trends and conditions based on the network annually. | Results and recommendations included in State of Basin report published in April of each year |
| 8 | Assess the adequacy of the groundwater elevation monitoring well network annually. | Results and recommendations included in State of Basin report published in April of each year |
| 9 | Identify a subset of monitoring wells that will be monitored more frequently than twice annually to improve the SGA's understanding of aquifer responses to pumping throughout the year. | 12 months |

# Table 6. Summary of GMP Actions (continued)

| | Description of Action | Implementation Schedule (approximate time for commencing activity following adoption of GMP) |
|---|---|---|
| | ***Groundwater Quality Monitoring*** | |
| 1 | Coordinate with member agencies to verify that uniform protocols are used when collecting water quality data. | 6 months |
| 2 | Coordinate with the USGS to obtain historic water quality data for NAWQA wells, determine timing and frequency of monitoring under USGS program, and to discuss the potential for integrating USGS monitoring resources with the SGA network. | 6 months |
| 3 | Coordinate with member agencies and other local, state, and federal agencies to identify where wells may exist in areas with sparse groundwater quality data. | 6 months |
| 4 | Assess the adequacy of the groundwater quality monitoring well network annually. | Results and recommendations included in State of Basin report published in April of each year |
| | ***Land Surface Elevation Monitoring*** | |
| 1 | Investigate the feasibility and costs of re-surveying the wells in the Arden-Arcade area that were last measured in 1991. | 12 months |
| 2 | Coordinate with the USGS to ascertain the suitability of the use of Interferometric Synthetic Aperture Radar (InSAR) images of the SGA and surrounding area. If the technology appears suitable, identify the costs of determining ground surface elevations and identify potential cost-sharing partners. | 12 months |
| 3 | Coordinate with other agencies, particularly the City and County of Sacramento and the National Geodetic Survey to determine if there are other suitable benchmark locations in the SGA area to aid in the analysis of potential land surface subsidence. | 12 months |
| 4 | Educate SGA member agencies of the potential for land surface subsidence and signs that could be indicators of subsidence. | 12 months |
| | ***Surface Water Groundwater Interaction Monitoring*** | |
| 1 | Compile available stream gage data and information on tributary inflows and diversions from the American and Sacramento rivers to quantify net groundwater recharge or discharge between gages in the SGA area. | 12 months |
| 2 | Coordinate with local, state, and federal agencies to identify available surface water quality data from the American and Sacramento Rivers adjacent to the SGA area. | 12 months |
| 3 | Correlate groundwater level data from wells in the vicinity of river stage data to further establish whether the river and water table are in direct hydraulic connection, and if the surface water is gaining or losing at those points. | 12 months |
| 4 | Continue to coordinate with local, state, and federal agencies and develop partnerships to investigate cost-effective methods that could be applied to better understand surface water-groundwater interaction along the Sacramento River and American River. | 12 months |
| 5 | Coordinate with CSUS to analyze data obtained from recently constructed monitoring wells on the CSUS campus to better understand the relationship between the groundwater basin and surface water flows at that location. | 6 months |
| | ***Protocols for the Collection of Groundwater Data*** | |
| 1 | Use a Standard Operating Procedure (SOP) for collection of water level data by each of the member agencies. | 3 months |
| 2 | Provide member agencies with guidelines on the collection of water quality data developed by DHS for the collection, pretreatment, storage, and transportation of water samples (DHS, 1995). | 3 months |
| 3 | 3. Provide training on the implementation of these SOPs to member agencies, if requested. | 3 months |
| | ***Data Management System*** | |
| | *No Action Required* | |
| **III.** | **COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION** | |
| | ***Well Construction Policies*** | |
| 1 | Ensure that all member agencies are provided a copy of the county well ordinance and understand the proper well construction procedures | 3 months |
| 2 | Inform member agencies of Sacramento County's Consultation Zone and provide a copy of the boundary of the former McClellan AFB prohibition zone to appropriate member agencies. | 6 months |
| 3 | Provide a copy of the most recently delineated plume extents at the former McClellan AFB, the former Mather AFB, and Aerojet to the EMD and SGA members for their review and possible use. | 3 months |
| 4 | Coordinate with member agencies to provide guidance as appropriate on well construction. Where feasible and appropriate, this could include the use of subsurface geophysical tools prior to construction of the well to assist in well design. | 3 months |

## Table 6. Summary of GMP Actions (continued)

| | Description of Action | Implementation Schedule (approximate time for commencing activity following adoption of GMP) |
|---|---|---|
| | ***Well Abandonment and Well Destruction Policies*** | |
| 1 | Ensure that all member agencies are provided a copy of the code and understand the proper destruction procedures and support implementation of these procedures | 3 months |
| 2 | Follow up with member agencies on the reported abandoned and destroyed wells to confirm the information collected from DWR | 6 months |
| 3 | Provide a copy of the information on abandoned and destroyed wells in northern Sacramento County to fill any gaps in their records | 12 months |
| 4 | Meet with the EMD to discuss ways to ensure that wells in the SGA area are properly abandoned or destroyed | 6 months |
| 5 | Obtain "wildcat map from California Division of Oil and Gas to ascertain the extent of historic gas well drilling operations in the area as these wells could function as conduits of contamination if not properly destroyed. | 12 months |
| | ***Wellhead Protection Measures*** | |
| 1 | Request that member agencies provide vulnerability summaries from the DWSAP to the SGA to be used for guiding management decisions in the basin. | 6 months |
| 2 | Contact groundwater basin managers in other areas of the state for technical advice, effective management practices, and "lessons learned," regarding establishing wellhead protection areas | 12 months |
| | ***Protection of Recharge Areas*** | |
| 1 | When CAS results are available, meet with the SWRCB to discuss those results and consider follow-on actions | 6 months |
| | ***Control of the Migration and Remediation of Contaminated Groundwater*** | |
| 1 | Coordinate with known responsible parties to develop a network of monitoring wells to act as an early warning system for public supply wells. | 6 months |
| 2 | If detections occur in these monitoring wells, work with the responsible parties and the potentially impacted member agency to develop strategies to minimize the further spread of contaminants. | on-going |
| 3 | Provide SGA members with all information on mapped contaminant plumes and LUST sites for their information in developing groundwater extraction patterns and in the siting of future production or monitoring wells | 6 months |
| 4 | Meet with representatives of the RWQCB to establish a mutual understanding about SGA's groundwater management responsibilities | 6 months |
| | ***Control of Saline Water Intrusion*** | |
| 1 | Track the progression, if any, of saline water bodies moving toward the east from the Delta. | on-going |
| 2 | Observe TDS concentrations in public supply wells of North Area Groundwater Basin water suppliers that are routinely sampled under the DHS Title 22 Program. These data will be readily available in the SGA's DMS and are already an on-going task for the annual review of basin conditions. | on-going |
| 3 | Inform all member water purveyor managers of the presence of the interface and the approximate depth of the interface below their service area for their reference when siting potential wells. | on-going |
| **VI.** | **COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY** | |
| | ***Conjunctive Management Activities*** | |
| 1 | Continue to investigate conjunctive use opportunities within the SGA area | on-going |
| 2 | Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. injection wells or surface spreading facilities, through constructed recharge basins or in river or stream beds). | on-going |
| | ***Demand Reduction*** | |
| 1 | Coordinate with the RWA and its members that have signed specific agreements to the WFA to ensure that those conservation efforts are on track. For members that are not signatory, the SGA will ensure that they are informed of the benefits and regional importance of RWA's WEP. | on-going |
| 2 | Coordinate with SRCSD through the RWA to investigate opportunities for expanded use of recycled water throughout the county. | on-going |
| **V.** | **COMPONENT CATEGORY 5: PLANNING INTEGRATION** | |
| | ***Existing Integrated Planning Efforts*** | |
| 1 | Prepare and adopt a formal integrated water management plan in accordance with CWC Section 10540 et seq. The SGA will form an ad hoc committee with the RWA to determine which agency would be most appropriate to prepare that plan. | 12 months |
| 2 | Review the Water Forum Land Use procedures and make recommendations on what additional role, if any, SGA should take with respect to land use decisions within the SGA area | 6 months |

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# APPENDIX D

ZONE 40 GROUNDWATER MANAGEMENT PLAN

Sacramento County Water Agency

# Groundwater Management Plan

October 26, 2004

SACRAMENTO COUNTY WATER AGENCY

MWH

# TABLE OF CONTENTS


**EXECUTIVE SUMMARY**

**SECTION 1.** Introduction

**SECTION 2.** Water Resources Setting

**SECTION 3.** Management Plan Elements

**SECTION 4.** Plan Implementation

**SECTION 5.** References

**SECTION 6.** Appendices

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# EXECUTIVE SUMMARY

# EXECUTIVE SUMMARY

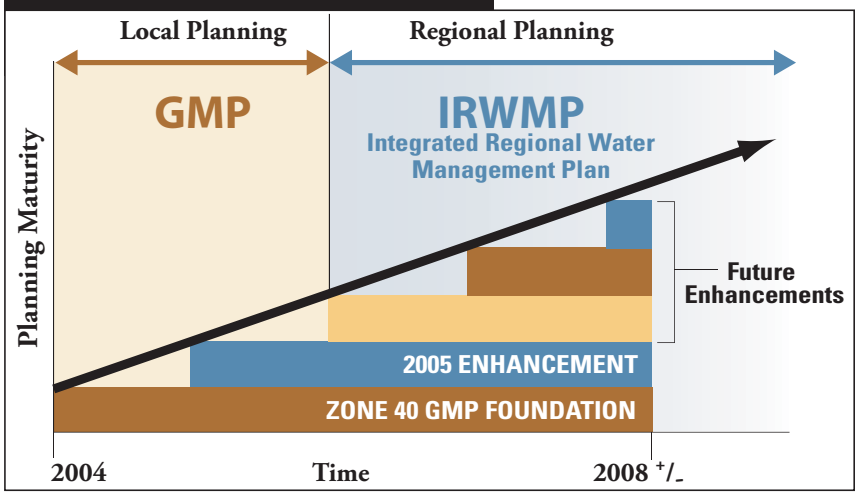
*Zone 40 Groundwater Management Plan Satisfies Multiple Stakeholder Needs and Objectives*

## WHAT IS A GROUNDWATER MANAGEMENT PLAN?

A Groundwater Management Plan (GMP) is a planning tool that assists overlying water providers in maintaining a safe, sustainable and high quality groundwater resource within a given groundwater basin. GMPs are intended to be "living documents" that can be readily updated and refined over time to reflect progress made in achieving the GMP's objectives **(Figure 1)**. Because many agencies are new to groundwater planning, SB 1938 outlines a series of required, recommended, and voluntary actions that will promote ongoing growth in the GMP's depth and content.

Lastly, GMPs have become a required "baseline" document for agencies seeking grant funds available from the State of California. Like other planning documents required by the State, an approved GMP is a minimum requirement for agencies seeking competitively awarded grant funds.

**Figure 1. Maturity and Planning**

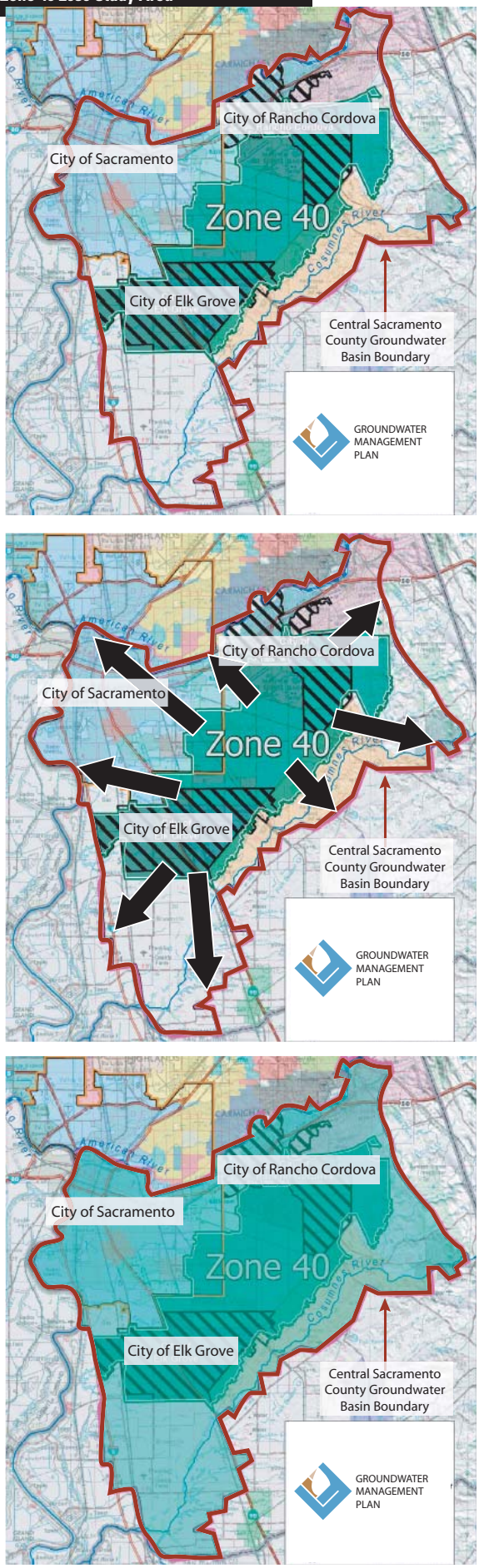


## WHO BENEFITS FROM THE GMP?

The proposed GMP currently extends to the boundaries of Zone 40 **(Figure 2)** of the Sacramento County Water Agency (SCWA). Zone 40 is a significant geographic portion of the Central Sacramento County Groundwater Basin (Central Basin). The decision to limit the extent of this GMP to Zone 40 was intentional because deliberations and discussion are currently underway between interested stakeholders regarding future governance and management of a "groundwater authority" for the Central Basin. The Zone 40 GMP is intended to be a document that can grow into, and perhaps be superseded by, the GMP that will be needed for the entire Central Basin.

While this GMP is limited geographically to the boundaries of Zone 40, the work and analyses contained in this effort will benefit all stakeholders in the Central Basin.

**Figure 2. Zone 40 2030 Study Area**



## WHAT IS REQUIRED IN A GMP?

Requirements in SB 1938 guide the preparation of GMPs and contain numerous technical requirements and provisions which are briefly summarized as follows:

- A GMP contains an inventory of water supplies and describes water uses within a given region.
- A GMP establishes groundwater Basin Management Objectives (BMOs) that are designed to protect and enhance the groundwater basin.
- A GMP identifies monitoring and management programs that ensure the BMOs are being met.
- The GMP outlines a stakeholder involvement and public information plan for the groundwater basin.

## WHY WAS THE GMP PREPARED?

The Zone 40 GMP has been prepared by SCWA primarily to begin the groundwater planning process for Zone 40—positioning the agency for future activities. These activities are summarized as follows:

- A GMP is a prerequisite in applying for grant funding opportunities.
- The GMP develops a framework or baseline on which to build future planning efforts.
- Preparing a GMP is good planning procedure.

The Zone 40 GMP satisfies multiple stakeholder needs and objectives. Ultimately, this GMP will serve as the framework for a GMP that will encompass the entire Central Basin (see **Figure 2**). For the GMP to be expanded to include the entire Central Basin, Central Sacramento County Groundwater Forum (CSCGF) support would need to be secured and other interested parties' approval obtained.

### Stakeholder Involvement

To address the needs of all affected stakeholders, SCWA has held several meetings and workshops and pursued several means of achieving broader involvement in the management of the Central Basin. Activities have included:

- SCWA supporting the Water Forum Successor Effort and the CSCGF financially.
- SCWA participating in monthly CSCGF stakeholder negotiation meetings.
- SCWA notifying and involving other local agencies and interests within and adjacent to the Zone 40 area.
- SCWA soliciting input from stakeholders in monthly CSCGF and cluster meetings during the development and public comment process for approving the GMP.
- SCWA developing and fostering relationships with state and federal regulatory agencies.
- SCWA pursuing a variety of partnerships to achieve local water supply sustainability.
- SCWA incorporating comments received from stakeholders into the GMP.

### Future Action Items

The intended approval date of the Zone 40 GMP is November 2, 2004. Following approval, SCWA will begin refining the GMP, adding the next increment of detail beginning in early 2005 as additional recommendations and voluntary components of SB 1938 are developed. After the 2005 refinement of the GMP is completed, SCWA will consider the possible geographic expansion of the GMP to the Central Basin, subject to stakeholder input and direction.

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# GROUNDWATER MANAGEMENT PLAN

Groundwater Management Plan

# TABLE OF CONTENTS

## SECTION 1. INTRODUCTION *PAGES. 1-10*


| | | |
|---|---|---|
| **1.1** | **FORMATION OF SCWA** | **1** |
| **1.2** | **CREATION OF ZONE 40** | **1-2** |
| **1.3** | **OTHER REGIONAL MANAGEMENT EFFORTS** | **2-7** |
| 1.3.1 | Water Forum | 4 |
| 1.3.2 | Central Sacramento County Groundwater Forum | 5 |
| 1.3.3 | Zone 40 Water Supply Master Plan and Environmental Documentation | 5 |
| 1.3.4 | Sacramento Groundwater Authority (SGA) | 5-6 |
| 1.3.5 | Regional Water Authority (RWA) | 6 |
| 1.3.6 | South Sacramento County Agricultural Water Authority (SSCAWA) and The Nature Conservancy (TNC) | 7 |
| 1.3.7 | Other Ongoing Groundwater Management-Related Activities within Zone 40 | 7 |
| **1.4** | **PURPOSE OF THE SCWA ZONE 40 GMP** | **7** |
| **1.5** | **AUTHORITY TO PREPARE AND IMPLEMENT A GMP** | **8** |
| **1.6** | **GMP COMPONENTS** | **8** |


## SECTION 2. WATER RESOURCES SETTING *PAGES. 11-32*


| | | |
|---|---|---|
| **2.1** | **GROUNDWATER SUPPLIES** | **11-12** |
| 2.1.1 | Overview of Hydrogeologic Setting | 12 |
| **2.2** | **HYDROSTRATIGRAPHY OF ZONE 40 AREA** | **13-14** |
| **2.3** | **GROUNDWATER QUALITY** | **14-15** |
| **2.4** | **RECHARGE AND EXTRACTION OF GROUNDWATER IN SACRAMENTO COUNTY** | **16-20** |
| **2.5** | **SURFACE WATER SUPPLIES** | **21-23** |
| 2.5.1 | Surface Water Conditions | 22 |
| 2.5.2 | Surface Water Quality | 22-23 |

| | | |
|---|---|---|
| **2.6** | **RECYCLED WATER SUPPLIES** | **23** |
| **2.7** | **EXISTING FACILITIES** | **23-27** |
| 2.6.1 | Groundwater Facilities | 24 |
| 2.6.2 | Surface Water Facilities | 24-27 |
| **2.8** | **EFFECTS OF WFA IMPLEMENTATION** | **27** |
| **2.9** | **WATER YEAR TYPES** | **27** |
| **2.10** | **FUTURE FACILITIES AND OPERATIONS** | **28** |
| **2.11** | **WATER USE BY YEAR TYPE** | **28-32** |

## SECTION 3. MANAGEMENT PLAN ELEMENTS *PAGES. 33-52*

| | | |
|---|---|---|
| **3.1** | **GROUNDWATER MANAGEMENT GOAL** | **33** |
| **3.2** | **BASIN MANAGEMENT OBJECTIVES** | **33-35** |
| **3.3** | **GMP COMPONENTS** | **36** |
| **3.4** | **COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT** | **36-38** |
| 3.4.1 | Involving the Public | 36-37 |
| 3.4.2 | Involving Other Agencies Within and Adjacent to the Zone 40 Area | 37 |
| 3.4.3 | Utilizing Advisory Committees | 38 |
| 3.4.4 | Developing Relationships with State and Federal Agencies | 38 |
| 3.4.5 | Pursuing Partnership Opportunities | 38 |
| **3.5** | **COMPONENT CATEGORY 2: MONITORING PROGRAM** | **38-44** |
| 3.5.1 | Groundwater Elevation Monitoring | 39-40 |
| 3.5.2 | Groundwater Quality Monitoring | 40-41 |
| 3.5.3 | Land Surface Elevation Monitoring | 42 |
| 3.5.4 | Surface Water Groundwater Interaction Monitoring | 43 |
| 3.5.5 | Protocols for the Collection of Groundwater Data | 43-44 |
| 3.5.6 | Data Management System | 44 |

| | | |
|---|---|---|
| **3.6** | **COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION** | **44-48** |
| 3.6.1 | Well Construction Policies | 45 |
| 3.6.2 | Well Abandonment and Well Destruction Policies | 46-47 |
| 3.6.3 | Wellhead Protection Measures | 47 |
| 3.6.4 | Protection of Recharge Areas | 47-48 |
| 3.6.5 | Control of the Migration and Remediation of Contaminated Groundwater | 48 |
| 3.6.6 | Control of Saline Water Intrusion | 48 |
| **3.7** | **COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY** | **49-50** |
| 3.7.1 | Demand Reduction | 49-50 |
| **3.8** | **COMPONENT CATEGORY 5: PLANNING INTEGRATION** | **50-51** |
| 3.8.1 | Existing Integrated Planning Efforts | 50-51 |

## SECTION 4. PLAN IMPLEMENTATION *PAGES 53-55*

| | | |
|---|---|---|
| **4.1** | **ANNUAL GMP IMPLEMENTATION REPORT** | **53** |
| **4.2** | **FUTURE REVIEW OF GMP** | **55** |
| **4.3** | **FINANCING** | **55** |

## SECTION 5. REFERENCES *PAGES 57-58*

## SECTION 6. APPENDICES

| | |
|---|---|
| **6.1** | **APPENDIX A. OUTREACH AND EDUCATION (included as separate attachment)** |
| 6.1.1 | Attachment A. Zone 40's Notices Published in the Sacramento Bee |
| 6.1.2 | Attachment B. "Summary of Public Outreach Plan for Groundwater Management" (Lucy & Company, 2003). |
| **6.2** | **APPENDIX B. STANDARD OPERATING PROCEDURE FOR MANUAL WATER LEVEL MEASUREMENTS** |
| **6.3** | **APPENDIX C. SUMMARY OF THE DATA MANAGEMENT SYSTEM** |

# LIST OF FIGURES


| | | |
|---|---|---|
| 1-1 | Boundary of SCWA Zone 40 and Area Covered by this Groundwater Management Plan | 3 |
| 1-2 | Zone 40 2030 Study Area | 6 |
| 2-1 | Location of South American Groundwater Subbasin | 12 |
| 2-2 | Regional Stratigraphic Column | 13 |
| 2-3 | Principle Contaminant Plumes | 15 |
| 2-4 | Spring 2003 Groundwater Elevation Contours | 17 |
| 2-5 | Zone 40 Groundwater Elevation Hydrographs | 19-20 |
| 2-6 | Existing SCWA Zone 40 Facilities | 24 |
| 2-7 | Surface Water and Groundwater Demands for Zone 40 (1995-2003) | 27 |
| 2-8 | Changing Water Supplies from Wet to Critical years over the 70-Year Historical Hydrologic Conditions | 29 |
| 2-9 | Wet/Average Year Water Utilization | 30 |
| 2-10 | Drier Year Water Utilization | 31 |
| 2-11 | Driest Year Water Utilization | 32 |
| 3-1 | Organization of Management Plan Elements | 34 |
| 3-2 | Groundwater Users within Zone 40 Boundaries | 35 |
| 3-3 | Zone 40 Groundwater Elevation Monitoring Network | 40 |
| 3-4 | Existing and Proposed Wells in Zone 40 Groundwater Quality Monitoring Network | 41 |
| 3-5a | DMS Screen Capture | 45 |
| 3-5b | DMS Screen Capture | 46 |


# LIST OF TABLES


| | | |
|---|---|---|
| 1-1 | Location of GMP Components | 9 |
| 2-1 | Detail of Surface Water Supply Components | 21 |
| 2-2 | Summary of SCWA Wells Owned and Operated by Zone 40 | 25-26 |
| 4-1 | Summary of GMP Actions | 54-55 |

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ***AB*** | Assembly Bill |
| ***Aerojet*** | Aerojet-General Corporation |
| ***AF*** | Acre-feet |
| ***AF/year*** | Acre-feet per year |
| ***AFRPA*** | Air Force Real Property Agency |
| ***Agency Act*** | Sacramento County Water Agency Act |
| ***Ag/res*** | agricultural/residential |
| ***ARBCUP*** | American River Basin Regional Conjunctive Use Program |
| ***ARWRI*** | American River Water Resources Investigation |
| ***BAT*** | Best Available Technology |
| ***BMO*** | Basin Management Objective |
| ***BMP*** | Best Management Practice |
| ***Boeing*** | McDonnell-Douglas |
| ***Cal-Am*** | California-American Water Company |
| ***CALFED*** | CALFED Bay-Delta Program |
| ***CAS*** | California Aquifer Susceptibility |
| ***CCR*** | California Code of Regulations |
| ***Central Basin*** | Central Sacramento County Groundwater Basin |
| ***CEQA*** | California Environmental Quality Act |
| ***cfs*** | Cubic feet per second |
| ***CMP*** | Sacramento Coordinated Water Quality Monitoring Program |
| ***COC*** | Contaminants of concern |
| ***Cooperating Agencies*** | American River Basin Cooperating Agencies |
| ***CSCGF*** | Central Sacramento County Groundwater Forum |

| | |
|---|---|
| ***CSUS*** | California State University, Sacramento |
| ***CVP*** | Central Valley Project |
| ***CVPIA*** | Central Valley Project Improvement Act |
| ***CWC*** | California Water Code |
| ***DCA*** | 1,2-dichloroethane |
| ***DCE*** | cis-1,2-dichloroethene |
| ***Delta*** | Sacramento/San Joaquin River Delta |
| ***DHS*** | California Department of Health Services |
| ***DMS*** | Data Management System |
| ***DTSC*** | Department of Toxic Substance Control |
| ***DWR*** | California Department of Water Resources |
| ***DWSAP*** | Drinking Water Source Assessment and Protection Program |
| ***EBMUD*** | East Bay Municipal Utility District |
| ***EDU*** | Equivalent Dwelling Unit |
| ***EIR*** | Environmental Impact Report |
| ***EMD*** | Sacramento County Environmental Management Department |
| ***EPA*** | United States Environmental Protection Agency |
| ***EWA*** | Environmental Water Account |
| ***Folsom*** | City of Folsom |
| ***FRCD/EGWS*** | Florin Resource Conservation District/Elk Grove Water Service |
| ***GAC*** | Granulated Activated Carbon |
| ***GMP*** | Groundwater Management Plan |
| ***GP*** | 1993 Sacramento County General Plan |
| ***gpm*** | Gallons per minute |
| ***Groundwater Forum*** | Central Sacramento County Groundwater Forum |

| | |
|---|---|
| ***IGSM*** | Integrated Groundwater and Surface Water Model |
| ***InSAR*** | Interferometric Synthetic Aperture Radar |
| ***ISI*** | Integrated Storage Investigation |
| ***JPA*** | Joint Powers Authority |
| ***LSCE*** | Luhdorff & Scalmanini Consulting Engineers |
| ***LUFT*** | Leaking Underground Fuel Tank |
| ***LUST*** | Leaking Underground Storage Tank |
| ***M&I*** | Municipal and industrial |
| ***MCL*** | Maximum Contaminant Level |
| ***MCLG*** | Maximum Contaminant Level Goal |
| ***MGD*** | Million Gallons per Day |
| ***mg/L*** | Milligrams per liter (also parts per million) |
| ***mmhos/cm*** | micromhos per centimeter |
| ***MMM*** | Multimedia Mitigation |
| ***MWH*** | MWH Americas, Inc. |
| ***MSL*** | Mean sea level |
| ***µ/L*** | Micrograms per liter (also parts per billion) |
| ***NAWQA*** | National Water Quality Assessment |
| ***NDMA*** | n-nitrosodimethylamine |
| ***NEPA*** | National Environmental Policy Act |
| ***NGS*** | National Geodetic Survey |
| ***O&M*** | Operations and Maintenance |
| ***PBE*** | Physical Barrier Effectiveness |
| ***PCAs*** | Potential Contaminating Activities |
| ***PCE*** | Perchloroethylene |
| ***pCi/l*** | pico curies per liter |

| | |
|---|---|
| ***PL*** | Public Law |
| ***POU*** | Place of Use |
| ***PSA*** | Purveyor Specific Agreement |
| ***Reclamation*** | U.S. Bureau of Reclamation |
| ***Roseville*** | City of Roseville |
| ***RWA*** | Regional Water Authority |
| ***RWMP*** | Regional Water Master Plan |
| ***RWQCB*** | Regional Water Quality Control Board |
| ***Sac Regional*** | Sacramento Regional Wastewater Treatment Plant |
| ***SACOG*** | Sacramento Area Council of Governments |
| ***Sacramento*** | City of Sacramento |
| ***SAFCA*** | Sacramento Area Flood Control Agency |
| ***SCWA*** | Sacramento County Water Agency |
| ***SCWC*** | Southern California Water Company |
| ***SDWA*** | Safe Drinking Water Act |
| ***SGA*** | Sacramento Groundwater Authority |
| ***SMUD*** | Sacramento Municipal Utility District |
| ***SMWA*** | Sacramento Metropolitan Water Authority |
| ***SOP*** | Standard Operating Procedure |
| ***SRCSD*** | Sacramento Regional County Sanitation District |
| ***SRWTP*** | Sacramento River Water Treatment Plant |
| ***SSCAWA*** | South Sacramento County Agricultural Water Authority |
| ***SWRCB*** | State Water Resources Control Board |
| ***SWTR*** | Surface Water Treatment Rule |
| ***TAF*** | Thousands of acre feet |
| ***TCE*** | Tetrachloroethylene |

| | |
|---|---|
| ***TDS*** | Total dissolved solids |
| ***TNC*** | The Nature Conservancy |
| ***USACE*** | U.S. Army Corps of Engineers |
| ***USBR*** | United States Bureau of Reclamation |
| ***USGS*** | U.S. Geological Survey |
| ***Water Forum*** | Sacramento Area Water Forum |
| ***WEP*** | Water Efficiency Program |
| ***WF DIER*** | Water Forum Draft Environmental Impact Report |
| ***WFA*** | Water Forum Agreement |
| ***WTP*** | Water treatment plant |
| ***WSMP*** | Zone 40 Water Supply Master Plan |

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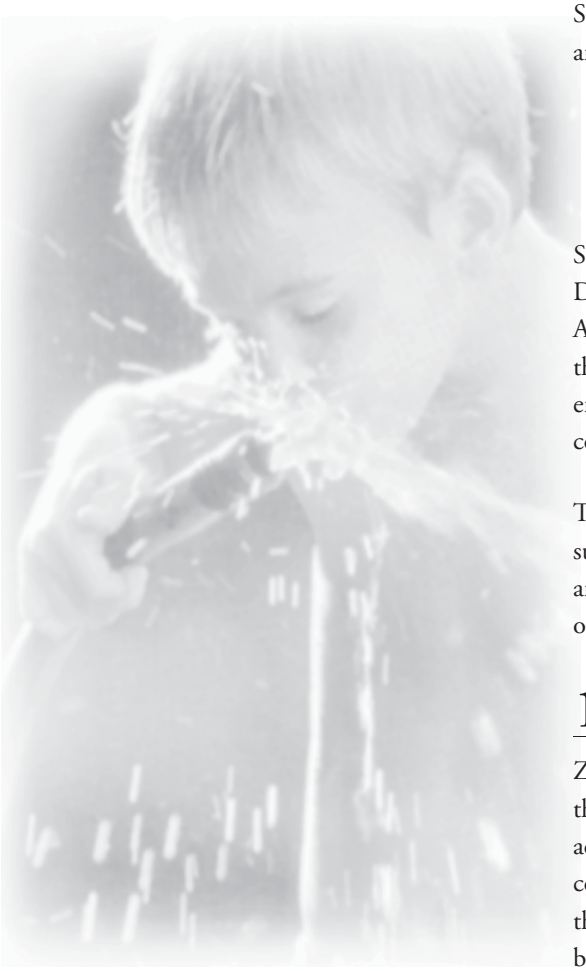
SECTION 1

# INTRODUCTION

SECTION 1

*This section describes the Sacramento County Water Agency (SCWA), its formation, and the formation and purpose of a special benefit zone within SCWA known as Zone 40. A summary of on-going master planning efforts has also been provided for context with various regional planning efforts taking place throughout Sacramento County.*

# INTRODUCTION



## 1.1 FORMATION OF SCWA

SCWA was formed in 1952 by a special legislative act of the State of California (the Sacramento County Water Agency Act [Agency Act]). SCWA's purposes include, but are not limited to, the following:

1. Making water available for any beneficial use of lands and inhabitants, and
2. Producing, storing, transmitting, and distributing groundwater in accordance with an approved Master Plan.

SCWA's boundaries include all of Sacramento County and is governed by a Board of Directors (ex officio, the Sacramento County Board of Supervisors). Under the Agency Act, the Board may contract with the federal government under reclamation laws with the same powers as irrigation districts, and with the State of California and federal government with respect to the purchase, sale, and acquisition of water. SCWA may also construct and operate any required capital facilities.

There are currently several benefit zones within SCWA that are related to both water supply (Zone 13, Zone 40, Zone 41, and Zone 50) and drainage (Zone 11, Zone 12 and Zone 13). Each has a unique purpose and generates revenue internally for carrying out that purpose.

## 1.2 CREATION OF ZONE 40

Zone 40 was created by SCWA Resolution No. 663 in May 1985, which describes the exact boundaries of the zone, and defines the projects to be undertaken as "... the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands or inhabitants within the zone." The boundaries and scope of Zone 40's activities were expanded in April 1999 by Resolution WA-2331. Zone 40's scope now includes the use of recycled water in conjunction with surface water and groundwater.

Zone 40 is located in the central portion of Sacramento County (**Figure 1-1**). While much of Zone 40 consists of rural land uses, (i.e., agricultural, agricultural/residential (ag/res), and conservation reserve), urbanization has been occurring within the City of

Elk Grove, in the Vineyard and Mather/Sunrise areas of unincorporated Sacramento County, and more recently in the City of Rancho Cordova.

Historically, Zone 40 has relied on the underlying indigenous groundwater basin for agricultural, industrial, and residential water supplies. Over the past 10 years Zone 40 has supplemented the use of groundwater supplies with surface water, recycled water, and education and enforcement of water conservation. To address increasing demands for water in the region, SCWA is updating their Water Supply Master Plan (WSMP) for Zone 40. The WSMP is scheduled for approval in late 2004. SCWA is also signatory to, and has included in their WSMP, water supply policies in accordance with the Sacramento Area Water Forum Agreement. ***One of these policies provides for a sustainable average annual operational groundwater yield from the Central Sacramento County Groundwater Basin (Central Basin) of 273,000 Acre-Feet per year (AF/year).*** In 1990, when the Water Forum developed the sustainable yield, the Central Basin was yielding an estimated 250,000 AF/year. It is believed that the current extraction rate is the very close to the same amount. The extraction amount changes from year to year based on hydrologic conditions and consumer awareness of water conservation programs.

A primary role of Zone 40 is to meet growing urban water demands in a manner that maintains the integrity of the groundwater basin and existing groundwater users. Through the construction of groundwater wells that target portions of the underlying aquifer not used by private domestic wells, and through treatment of the groundwater before distribution to retail customers, Zone 40 has developed approximately 40 million gallons per day (MGD) of groundwater capacity. Through firm surface water contracts with the Bureau of Reclamation and wheeling agreements with the City of Sacramento, Zone 40 currently has the ability to deliver 7,000 AF/year of surface water and approximately 3 MGD (3,360 AF/year) of recycled water from the Sacramento Regional County Sanitation District's (SRCSD) Recycled Water Treatment Plant.

Zone 40 generates revenue to implement its capital program through development fees and from user fees collected bi-monthly from Zone 41 retail water service customers within Zone 40 and wholesale water service customers in the Elk Grove Water Service area.

## 1.3 OTHER REGIONAL MANAGEMENT EFFORTS

Over the past several decades, water supplies of the region have been effected by:

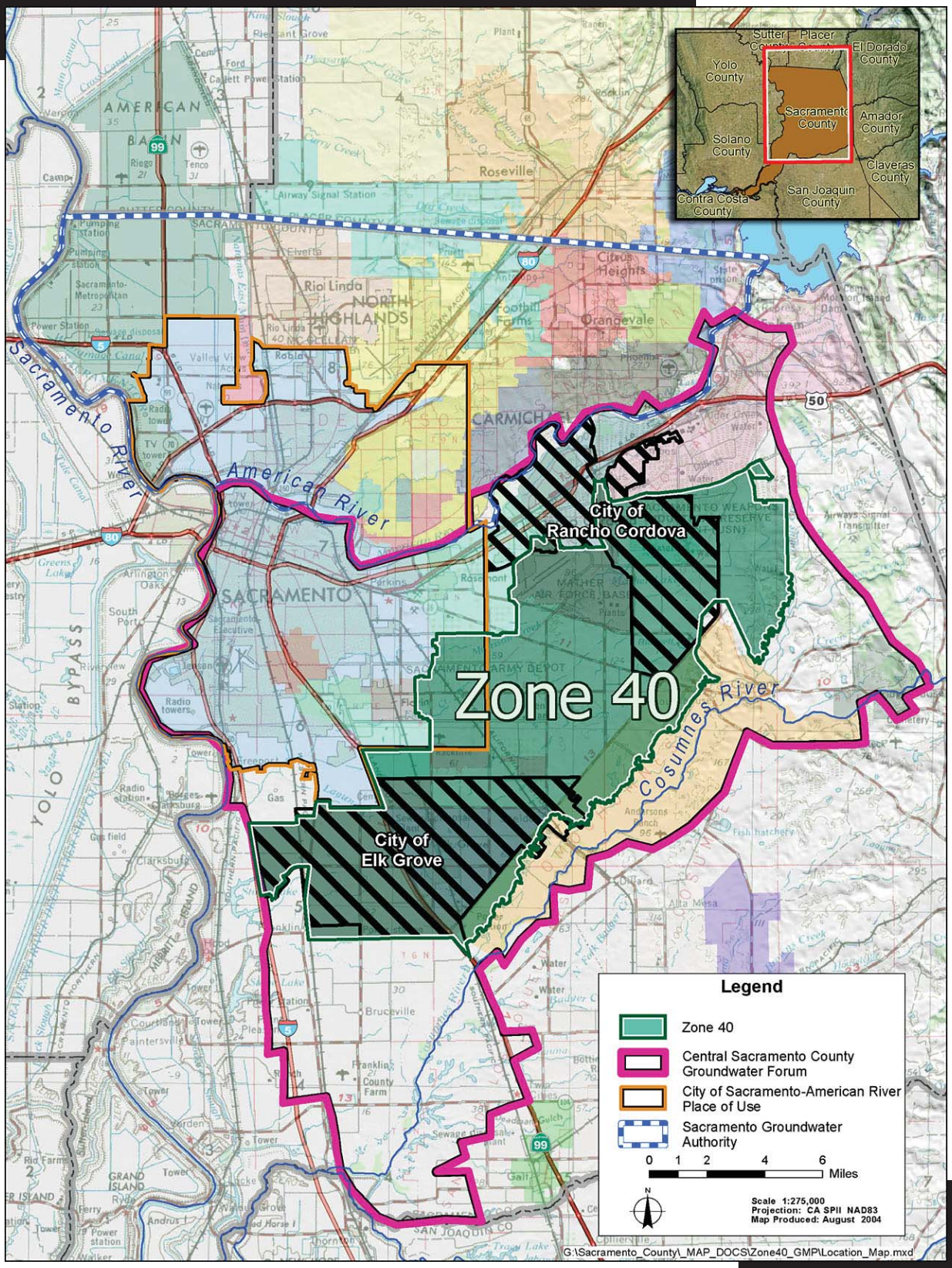
- Extended drought and wet periods.
- Increased push to dedicate surface water for environmental purposes.
- Groundwater contamination cleanup efforts ordered by the United States Environmental Protection Agency (EPA), the Central Valley Regional Water Quality Control Board (RWQCB), and the Department of Toxic Substance Control (DTSC).
- Declining groundwater levels.
- On-going and potential impacts to surface water quality and groundwater quality.

At the same time, demand for water in the region has continued to grow. To address these challenges, water purveyors in the region have invested substantial time and resources in a progression of regional planning efforts. In particular, the planning efforts most directly related to SCWA's efforts include:

- The Water Forum
- The Central Sacramento County Groundwater Forum (CSCGF)
- Completion of the Draft 2002 Zone 40 Water Supply Master Plan (WSMP) (SCWA, December 2002)
- Completion of the Draft Environmental Impact Report (EIR) for the Draft 2002 Zone 40 Water Supply Master Plan (EDAW, November 2003)
- The Regional Water Authority (RWA) and the Sacramento Groundwater Authority (SGA)
- The South Sacramento County Agricultural Water Authority (SSCAWA) and The Nature Conservancy (TNC).

Each of these regional planning efforts is discussed further below.

**Figure 1-1. Boundary of SCWA Zone 40 and Area Covered by this Groundwater Management Plan**



## 1.3.1 Water Forum

Begun in 1993, the Water Forum process brought together a diverse group of stakeholders that included business and agricultural leaders, citizens groups, environmentalists, water managers, and local governments to evaluate available water resources and the future water needs of the Sacramento Metropolitan Region. These stakeholders identified two co-equal objectives to guide the development of the Water Forum Agreement. These are:

- Provide reliable and safe water supply for the region's economic health and planned development through the year 2030; and
- Preserve the fishery, wildlife, recreational, and aesthetic values of the lower American River.

After a six-year consensus-based stakeholder process, the "Water Forum Agreement" (WFA) was completed. The WFA prescribes a regional conjunctive use program for the lower American River and the connected groundwater basin. The Water Forum also completed an "Environmental Impact Report (EIR) for the Water Forum Proposal" (State of California Clearinghouse Number 95082041). This document was certified by the two lead agencies (the City and County of Sacramento) in December 1999.

One of the seven elements of the WFA Plan is groundwater management. Implementation of this element includes adherence to an agreed upon long-term average annual pumping limit (sustainable yield) for each of the three geographic sub-areas of the groundwater basin within Sacramento County: 131,000 acre-feet ("AF") for the North Area (north of the American River); 273,000 AF for the Central Area (between the American and Cosumnes rivers); and 115,000 AF for the Galt or South Area (south of the Cosumnes River). Any proposed water supply project or groundwater management structure must satisfy the groundwater conditions specified in the WFA for the 2030 projected level of development.

The WFA includes Purveyor Specific Agreements (PSA), which define the benefits each water purveyor will receive as a stakeholder and actions each must take to receive these benefits. PSAs for the City of Sacramento and the Sacramento Municipal Utility District (SMUD) also describe commitments by the City of Sacramento, SMUD, and SCWA to address issues related to wheeling and wholesaling of surface water, CVP water transfers, and dry year water supply in Zone 40. A brief summary of SCWA's PSA follows:

- SCWA is responsible for providing wholesale water to an area that includes the Laguna, Vineyard, Elk Grove and Rancho Cordova communities commonly referred to as Zone 40. SCWA will divert firm and intermittent surface water from at or near the mouth of the American River or from the Sacramento River. SCWA will use groundwater and surface water conjunctively to meet water system demands.
- A portion of Zone 40 is situated within the Place of Use (POU) for the City of Sacramento's American River water entitlements (see **Figure 1-1**). It is assumed that these entitlements would be used to serve this area. Conditions for the use of this entitlement will be consistent with the conditions outlined in the City of Sacramento's PSA.
- All signatories to the WFA endorse SCWA's PSA, which provides for the construction of SCWA's water supply facilities. These include a diversion structure at or near the mouth of the American River or from the Sacramento River, treatment plants, pumping stations, wells, storage facilities, and transmission pipelines.
- Stakeholder support is contingent on project specific compliance with the California Environmental Quality Act (CEQA), and where applicable, the National Environmental Policy Act (NEPA), federal Endangered Species Act, and California Endangered Species Act.

Provisions in the WFA led to the establishment of the Sacramento North Area Groundwater Management Authority, now known as the SGA. Through a Joint Powers Agreement, the police powers of the Cities of Sacramento, Citrus Heights, and Folsom, the County of Sacramento, and SCWA are used by SGA for implementation of their adopted Groundwater Management Plan (GMP). SCWA is a member of SGA through their Zone 41 service area located north of the American River.

The WFA also calls for an interest-based negotiation process to provide all segments of the community an opportunity to participate in the development of a groundwater management structure for the Central Basin. This stipulation in the WFA led to the creation of the CSCGF under the aegis of the Water Forum Successor Effort.

## 1.3.2 Central Sacramento County Groundwater Forum

Acting on behalf of the Water Forum Successor Effort, the California Department of Water Resources (DWR) initiated the CSCGF by signing a Memorandum of Understanding with the Sacramento City-County Office of Metropolitan Water Planning (funded by SCWA and the City of Sacramento) to support discussions among stakeholders representing all segments of the community with an interest in developing a groundwater management structure and ultimately a GMP for the Central Basin. Stakeholders were selected through an area-wide assessment performed by the Water Forum Successor Effort to identify concerns and develop a structure for stakeholders to work together. Interviews were held with 94 stakeholders, resulting in the establishment of six interest groups: agriculture, agriculture/residential, business, environmental/community organizations, local governments/public agencies, and water purveyors. Each interest group is represented by five individuals who participate in the collaborative process known as CSCGF.

The CSCGF is currently in the negotiation phase of developing a governance structure for the Central Basin. Once this phase is completed, the governing body will develop and adopt their own GMP. That plan will supercede the Zone 40 GMP. In the interim, the CSCGF supports SCWA in developing and adopting the GMP in accordance with SB 1938 (Water Code Section § 10750 et seq.).

## 1.3.3 Zone 40 Water Supply Master Plan and Environmental Documentation

Zone 40 is located in the central portion of Sacramento County as shown in **Figure 1-2** and is entirely within the Central Basin. The WSMP has identified a study area ("2030 study area") within Zone 40 which consists of existing and developing industrial, commercial, office and residential land uses consistent with the City of Elk Grove and Rancho Cordova General Plans and the Sacramento County 1993 General Plan. The 2030 study area is approximately 46,620 acres and is shown as the purple shaded area in **Figure 1-2**.

Water demand is expected to be concentrated within the projected 2030 study areas shown in **Figure 1-2**. However, developments can be proposed and approved anywhere within Zone 40 where they are consistent with the framework and requirements provided in the various General Plans, Community Plans, Comprehensive Plans, Specific Plans, and zoning and subdivision ordinances.

Three retail water purveyors provide service within Zone 40: SCWA Zone 41 (formerly Sacramento County Water Maintenance District), Florin Resource Conservation District/Elk Grove Water Service Company ("FRCD/EGWS"), and the California-American Water Company ("Cal-Am" and formerly Citizens Utilities Company). Zone 40 currently provides wholesale water to a portion of the FRCD/EGWS service area under the terms of the First Amended and Restated Master Water Agreement. It has been assumed that Cal-Am will purchase wholesale water supplies from Zone 40 to serve its Security Park franchise area. The current service areas of these purveyors are shown on **Figure 1-2**.

## 1.3.4 Sacramento Groundwater Authority (SGA)

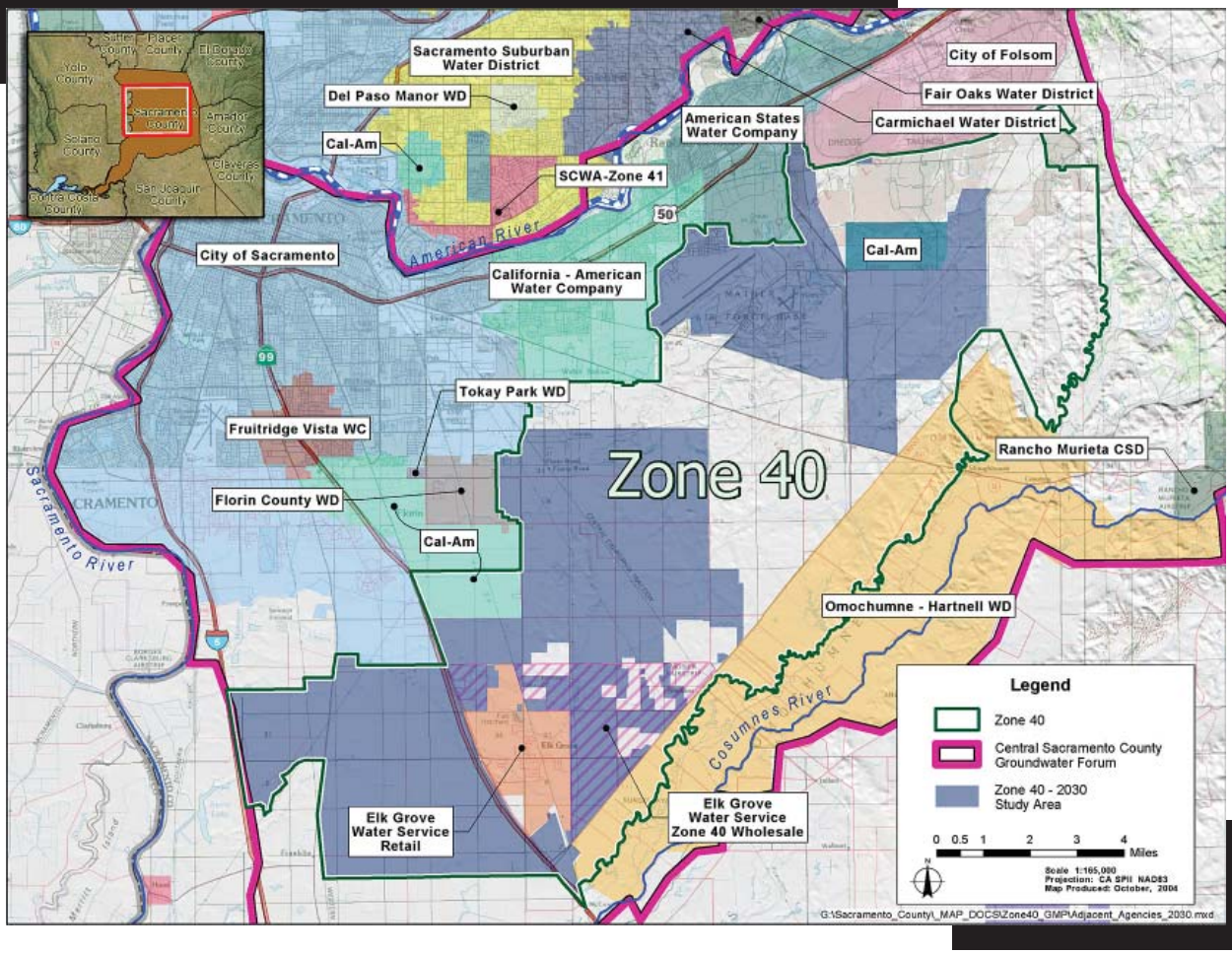
SGA is a joint powers authority (JPA) created to manage the North Basin. SGA's formation in 1998[1] was a result of a coordinated effort by the Sacramento Metropolitan Water Authority (SMWA) and the Water Forum to establish an appropriate management structure for the North Basin.

SGA draws its authority from a joint powers agreement signed by the cities of Citrus Heights, Folsom, and Sacramento, and the County of Sacramento and SCWA to exercise their common police powers to manage the underlying groundwater basin. With this authority, SGA manages the basin through representatives of the 14 local water purveyors and a representative from the agricultural and self-supplied pumpers, these representatives serve as the Board of Directors.[2]

[1] The SGA was originally formed in 1998 as the Sacramento North Area Groundwater Management Authority. In 2002, it was renamed the Sacramento Groundwater Authority.

[2] SGA Board members include representatives of California-American Water Company, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Sacramento, Sacramento County Water Agency, Del Paso Manor Water District, Fair Oaks Water District, Natomas Central Mutual Water Company, Orange Vale Water Company, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, American States Water Company, and individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts).

Figure 1-2. Zone 40 2030 Study Area




At the core of the SGA's management responsibility is a commitment to not exceed the average annual sustainable yield of the North Basin, which was estimated to be 131,000 acre-feet[3] in the WFA.[4] To accomplish this objective and to provide a safe, reliable water supply for a rapidly growing northern Sacramento County, SGA adopted their GMP in December 2003.

## 1.3.5 Regional Water Authority (RWA)

RWA represents a number of regional water supply interests and assists members in protecting and enhancing the reliability, availability, affordability, and quality of water resources. One of the principal missions of the RWA is facilitating implementation of the conjunctive use program prescribed by the WFA. The RWA currently has eighteen member agencies and three associate members, spanning Placer, Sacramento and El Dorado Counties. The County of Sacramento and SCWA are not members of RWA.

[3] This value was estimated based on water use and facilities in the basin at the time the WFA was adopted. This value was based on a number of assumptions, and was not intended to be a fixed value that could not be modified as conditions and assumptions changed in the basin. Examples of changed conditions include new or improved water conveyance, treatment, and storage facilities or changes in water supply contracts.

[4] The WFA is available online at www.waterforum.org or contact the Water Forum office at (916) 264-1999.

### 1.3.6 South Sacramento County Agricultural Water Authority (SSCAWA) and The Nature Conservancy (TNC)

The lower Cosumnes River watershed has been a major focus of conservation efforts in the Central Valley and is identified as a priority for ecosystem protection and restoration by both the California Bay-Delta Authority (formerly CALFED) and the USFWS Anadromous Fish Recovery Program, as well as in the Sacramento County General Plan. The Cosumnes channel and its associated floodplains are a major source of recharge for the Central Basin, and declining groundwater levels have adversely effected the river's salmon fishery and other environmental values. One of the goals of the WSMP environmental documentation has been to assess the extent of impairment of Cosumnes River flows and aquatic values that has resulted from historic and ongoing groundwater pumping (both M&I and agricultural) and to explore programmatic opportunities for restoring and maintaining these aquatic values through integrated water management. The Cosumnes River conservation partnership, which includes state, federal, local government, and non-profit land owners and managers, has been represented in the CSCGF process by TNC.

In addition to the natural values of the Cosumnes River corridor, the farmlands of the lower Cosumnes watershed are economically important and provide high value seasonal habitat for threatened and endangered wildlife species. The agricultural interests of the lower Cosumnes River watershed have participated in the CSCGF through the Sacramento County Farm Bureau and the SSCAWA, a joint powers agency comprised of three irrigation districts. SSCAWA and TNC, with the support of SCWA, are in turn actively investigating opportunities for flow restoration, conjunctive management, and enhanced recharge within the Cosumnes River corridor.

Because the ecological values of the Cosumnes River corridor have a statewide significance, and the River presents opportunities for integrated water management, goals of this GMP include the recognition, enhancement, and maintenance of the ecological values of the Cosumnes Rivers.

### 1.3.7 Other Ongoing Groundwater Management-Related Activities within Zone 40

There are a number of other on-going groundwater-related activities currently underway within Zone 40 and the Central Basin. Coordination between these efforts and SCWA will be discussed in more detail later in this GMP. The activities closely related to SCWA's groundwater management efforts include, but are not limited to, the following:

- Groundwater contamination investigation and remediation activities related to the former Mather Air Force Base now called Mather Field.
- Groundwater contamination investigation and remediation activities related to operations at the Aerojet-General Corporation (Aerojet) and the McDonnell-Douglas (Boeing) facilities.
- Groundwater contamination investigation and remediation activities related to operations at the Kiefer Landfill, and other abandoned landfills within Zone 40.
- Monitoring of groundwater levels and quality through participation in the California Department of Water Resources (DWR) Well Monitoring Program.
- Monitoring of groundwater levels and quality at California State University, Sacramento (CSUS).
- Monitoring of groundwater quality by the U.S. Geological Survey (USGS) as part of its National Water Quality Assessment Program.
- Monitoring of site investigations and remediation efforts at known leaking underground storage tanks (LUSTs) coordinated by the RWQCB.

## 1.4 PURPOSE OF THE SCWA ZONE 40 GMP

The purpose of this GMP is to maintain a sustainable, high-quality groundwater resource for the users of the groundwater basin underlying Zone 40. Ultimately, this GMP will serve as the framework for a GMP that will cover the entire Central Basin. Development of the Central Basin GMP will be through the governance structure currently under negotiations by the CSCGF (see **Section 1.3.2**).

## 1.5 AUTHORITY TO PREPARE & IMPLEMENT A GMP

The authority of SCWA to manage the Zone 40 Groundwater Basin is provided through the Water Agency Act. SCWA's Board of Directors elected to prepare this GMP as one of the tools necessary to effectively manage the groundwater basin underlying Zone 40. This GMP is consistent with the provisions of CWC § 10750 et seq. as amended January 1, 2003.

## 1.6 GMP COMPONENTS

The SCWA GMP includes both required and voluntary components.

**Table 1-1** lists these components and indicates the section(s) in which each component is addressed.

**Table 1-1. Location of GMP Components**

| *Description* | | *Section(s)* |
|---|---|---|
| **A.** | **CWC § 10750 et seq., Required Components[5]** | |
| 1. | Documentation of public involvement statement. | Section 3.4; Section 6.3 |
| 2. | Basin Management Objectives (BMOs). | Section 3.2 |
| 3. | Monitoring and management of groundwater elevations, groundwater quality, inelastic land surface subsidence, and changes in surface water flows and quality that directly affect groundwater levels or quality or are caused by pumping. | Section 3.5; Section 6.4 |
| 4. | Plan to involve other agencies located within groundwater basin. | Section 3.4 |
| 5. | Adoption of monitoring protocols by basin stakeholders. | Section 3.5 |
| 6. | Map of groundwater basin showing area of agency subject to GMP, other local agency boundaries, and groundwater basin boundary as defined in DWR Bulletin 118. | Figures 1-1; 1-2; 2-1 |
| 7. | For agencies not overlying groundwater basins, prepare GMP using appropriate geologic and hydrogeologic principles. | N/a |
| **B.** | **DWR's Recommended Components[6]** | |
| 1. | Manage with guidance of advisory committee. | Section 3.4.3 |
| 2. | Describe area to be managed under GMP. | Section 1; Section 2 |
| 3. | Create link between BMOs and goals and actions of GMP. | Section 3.2 |
| 4. | Describe GMP monitoring program. | Section 3.5 |
| 5. | Describe integrated water management planning efforts. | Sections 1.3; 1.4; 3.8 |
| 6. | Report on implementation of GMP. | Section 4.1 |
| 7. | Evaluate GMP periodically. | Section 4.1; 4.2 |
| **C.** | **CWC § 10750 et seq., Voluntary Components[7]** | |
| 1. | Control of saline water intrusion. | Section 3.6.6 |
| 2. | Identification and management of wellhead protection areas and recharge areas. | Section 3.6.3; 3.6.4 |
| 3. | Regulation of the migration of contaminated groundwater. | Section 3.6.5 |
| 4. | Administration of well abandonment and well destruction program. | Section 3.6.2 |
| 5. | Mitigation of conditions of overdraft. | Section 3.7 |
| 6. | Replenishment of groundwater extracted by water producers. | Section 3.2 |
| 7. | Monitoring of groundwater levels and storage. | Section 3.5, 6.4 |
| 8. | Facilitating conjunctive use operations. | Section 3.4.2; 3.7; 3.8.1 |
| 9. | Identification of well construction policies. | Section 3.6.1 |
| 10. | Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects. | Section 2.6; 2.7; 2.9 |
| 11. | Development of relationships with state and federal regulatory agencies. | Section 3.4.4 |
| 12. | Review of land use plans and coordination with land use planning agencies to assess activities that create reasonable risk of groundwater contamination. | Section 3.8 |

[5] CWC § 10750 et seq. (seven required components). Recent amendments to the CWC § 10750 et seq. require GMPs to include several components to be eligible for the award of funds administered by DWR for the construction of groundwater projects or groundwater quality projects. These amendments to the CWC were included in Senate Bill 1938, effective January 1, 2003.

[6] DWR Bulletin 118 (2003) components (seven recommended components).

[7] CWC § 10750 et seq. (12 voluntary components). CWC § 10750 et seq. includes 12 specific technical issues that could be addressed in GMPs to manage the basin optimally and protect against adverse conditions.

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SECTION 2

# WATER RESOURCES SETTING

SECTION 2

*This section describes the current understanding of surface and subsurface features within the Central Basin underlying Zone 40. Locations and classifications of the different types of groundwater users within the Central Basin are shown in* ***Figure 3-2****. Within Zone 40's boundaries, public retail water purveyors (i.e., Zone 41, FRCD/EGWS, and Cal-Am) currently rely exclusively on groundwater or a combination of surface water and groundwater. Groundwater and surface water supplies available to the basin are summarized below.*

*Zone 40 currently utilizes groundwater, surface water, and recycled water. Zone 40 also implements the 16 Best Management Practices for water conservation as set forth in the SCWA's Urban Water Management Plan and in the Water Forum Agreement.*

# WATER RESOURCES SETTING

## 2.1 GROUNDWATER SUPPLIES

This section provides a regional description of the geologic and hydrogeologic conditions of the underlying groundwater basin. A map showing the area of the South American River Subbasin, as defined by DWR Bulletin 118 (2003), and the Zone 40 boundary within this basin is presented in **Figure 2-1**.

The South American Subbasin is defined as the area bounded on the west by the Sacramento River, on the north by the American River, on the south by the Cosumnes and Mokelumne Rivers, and on the east by the Sierra Nevada Range. Bulletin 118 provides additional information about the South American Subbasin on the agency's Web site[8] including:

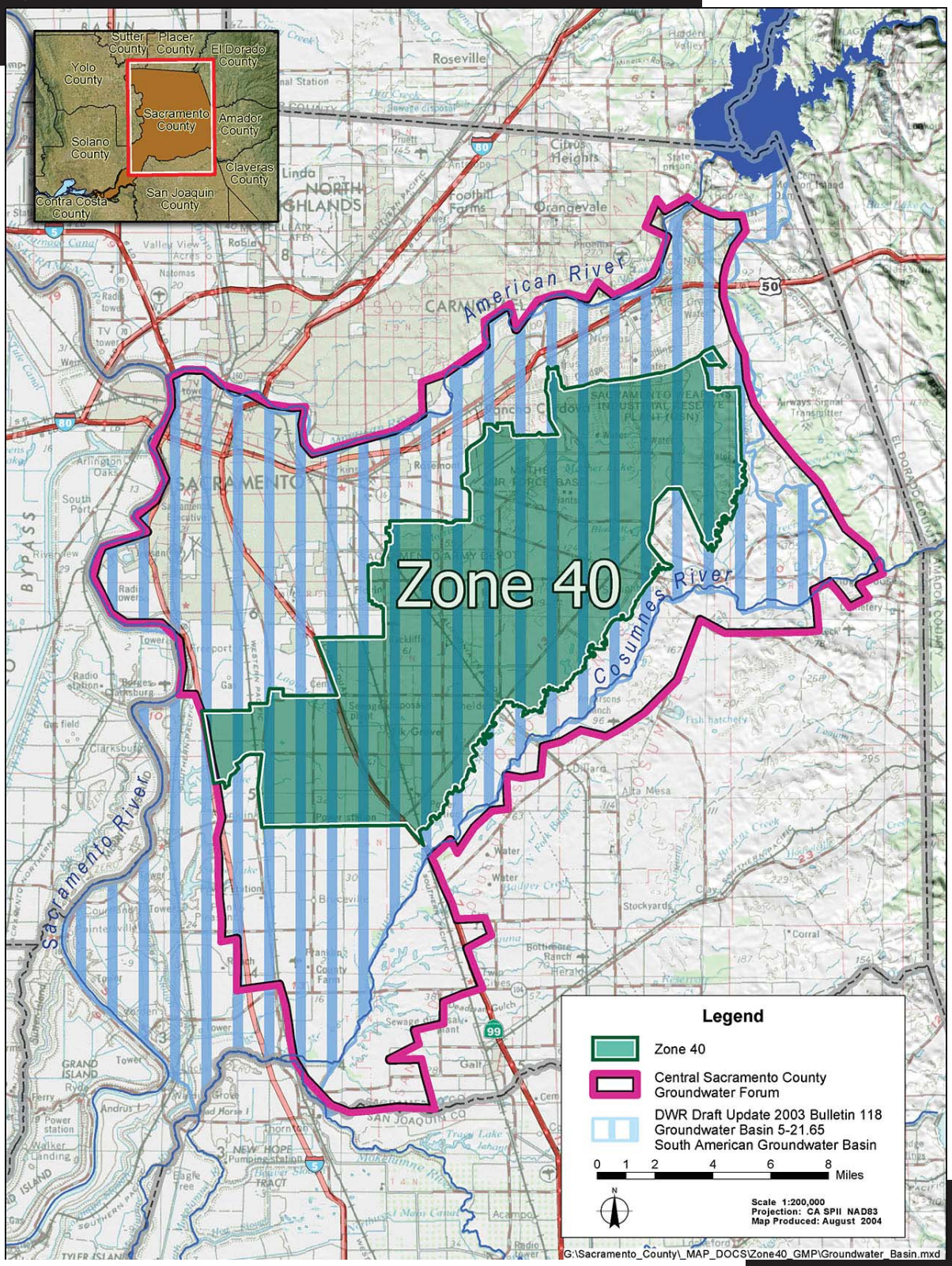
- Surface Area: 388 square miles.
- The perennial rivers that surround the subbasin generally create a groundwater divide in the shallow subsurface. It is clear that there is interaction between groundwater of adjacent subbasins at greater depths.
- Average annual precipitation in the basin ranges from about 14 inches along the western boundary to greater than 20 inches along the eastern boundary.
- The eastern basin boundary is defined by the uprising foothills of the Sierra Nevada and is a north-south line extending from Folsom Reservoir south to the small community of Rancho Murieta. This represents the approximate edge of the alluvial basin where little or no groundwater flows into or out of the groundwater basin from the Sierra Nevada foothills. The western portion of the subbasin consists of nearly flat flood plain deposits from the Sacramento, American, and Cosumnes rivers, and several small east side tributaries.

[8] At: http://www.dpla2.water.ca.gov/publications/groundwater/bulletin118/basins/5-21.64_North_American.pdf

## 2.1.1 Overview of Hydrogeologic Setting

The groundwater resources of Sacramento County have been extensively investigated and reported in the DWR Bulletin 118-3, Evaluation of Ground Water Resources: Sacramento County (July, 1974).

**Figure 2-1. Location of South American Groundwater Subbasin**



## 2.2 HYDROSTRATIGRAPHY OF ZONE 40 AREA

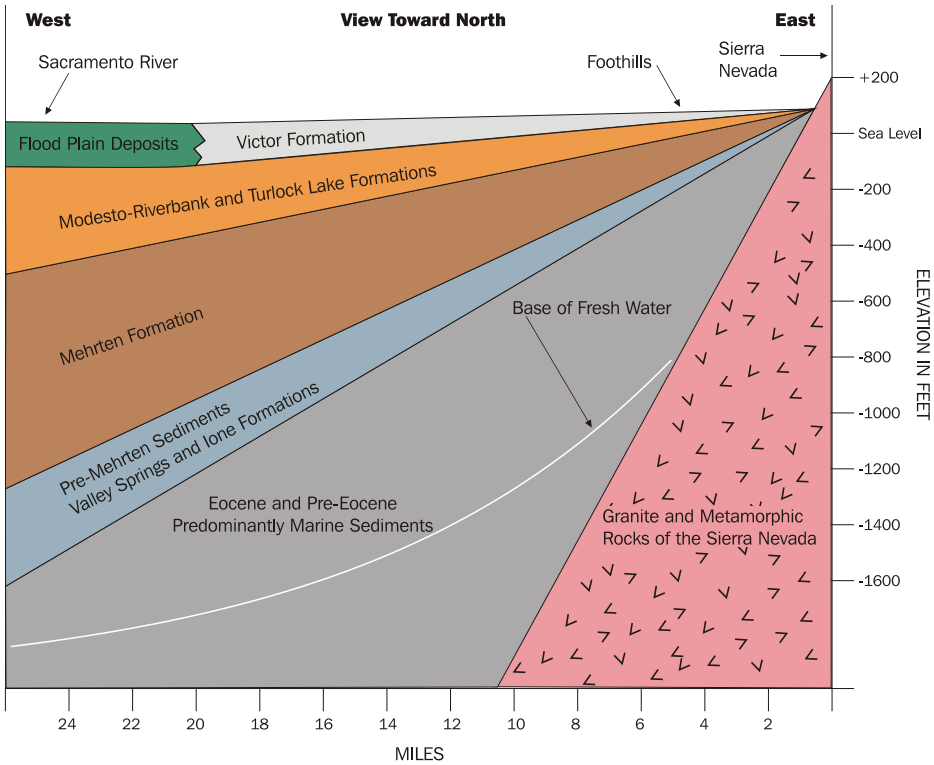
Bulletin 118-3 identifies and describes the various geologic formations that constitute the water-bearing deposits underlying Sacramento County. These formations include an upper, unconfined aquifer system consisting of the Victor, Fair Oaks, and Laguna Formations (now known as the Modesto Formation), and a lower, semi-confined aquifer system consisting primarily of the Mehrten Formation known for its fine black sands. These formations are shown on **Figure 2-2** and are typically composed of lenses of inter-bedded sand, silt, and clay, interlaced with coarse-grained stream channel deposits. **Figure 2-2** illustrates that these deposits form a wedge that generally thickens from east to west to a maximum thickness of about 2,500 feet under the Sacramento River. The Mehrten formation outcrops near the Sierra Foothills along the eastern Zone 40 boundary and is typically characterized as a black sandy lens.

Groundwater in the Central Basin is generally classified as occurring in a shallow aquifer zone (Laguna or Modesto Formation) or in an underlying deeper aquifer zone (Mehrten Formation). Within Zone 40 the shallow aquifer extends approximately 200 to 300 feet below the ground surface and, in general, the water quality in this zone is considered to be good except for the occurrence of arsenic in some locations. The shallow aquifer is typically targeted for private domestic wells requiring no treatment unless high arsenic values are encountered.

The deep aquifer is separated from the shallow aquifer by a discontinuous clay layer that serves as a semi-confining layer for the deep aquifer. The base of the potable water portion of the deep aquifer averages approximately 1,400 feet below the ground surface. Water in the deep aquifer typically has higher concentrations of total dissolved solids (TDS), iron, and manganese. Groundwater used in Zone 40 is supplied from both the shallow and deeper aquifer systems.

Older municipal wells and all domestic wells have been constructed in the shallow aquifer zone to avoid treatment. However, Zone 40 policies and practices has led to the construction of larger municipal wells that target the Mehrten Formation where higher production rates can be achieved and less impact to private domestic wells occur. This policy requires treatment of all municipal wells to

**Figure 2-2. Regional Stratigraphic Column**




Modified from DWR Bulletin 118-6, 1978

meet primary and secondary drinking water quality standards. This is discussed in more detail in the following section.

## 2.3 GROUNDWATER QUALITY

As mentioned previously, water quality in the upper aquifer system is regarded as superior to that of the lower aquifer system. The upper aquifer is preferred over the lower aquifer principally because the lower aquifer system (specifically the Mehrten formation) contains higher concentrations of iron and manganese. Water from the upper aquifer generally does not require treatment (other than disinfection). The lower aquifer system also has higher concentrations of total dissolved solids (TDS, a measure of salinity) than the upper aquifer, although it typically meets water quality standards as a potable water source. In general, groundwater at depths of approximately 1,400 feet or greater (actual depth varies throughout the basin), the TDS concentration exceeds 2,000 milligrams per liter (mg/L). At these concentrations, groundwater is considered to be non-potable unless reverse osmosis treatment is used to remove the dissolved solids.

***Background Water Quality.*** Source groundwater quality meets all California Code of Regulations (CCR) Title 22 primary and secondary drinking water quality standards, with the exception of iron, manganese, and arsenic. A number of Zone 40's wells exceed secondary drinking water standards for iron and manganese. Secondary standards were established for aesthetic concerns (e.g., staining of laundry and porcelain fixtures), and at elevated levels do not pose a health hazard. Arsenic concentrations in six wells have been measured at levels that exceed recently implemented federal drinking water standards of 10 micrograms per liter (µ/L) (January 2001); these regulations require compliance by January 2006. Radon has also been measured in the groundwater in the greater Sacramento County area, although not at levels exceeding the current drinking water standards.

This description of background water quality is based on data used to populate the Data Management System (DMS). Available groundwater quality data from monitoring between 1999 and 2003 were used to populate the DMS for the Zone 40 groundwater basin. The DMS can be used to query data and develop statistics and graphics for the constituents included in this evaluation.

***Total Dissolved Solids.*** TDS concentrations in most municipal wells are within the secondary drinking water standard; therefore, TDS does not limit the potable use of groundwater by Zone 40.

***Iron and Manganese.*** Iron and manganese is found in the deeper Zone 40 wells and requires treatment through the addition of chlorine and pressurized sand filtration; therefore, iron and manganese does not limit the potable use of groundwater by Zone 40. Iron concentrations range from non-detect (less than 10 µg/L) to 16,000 mg/L, although most wells have average values less than 200 mg/L. Manganese concentrations range from non-detect (less than 2 mg/L), to 1,700 mg/L, although most wells have average values less than 50 mg/L.

***Arsenic.*** Arsenic levels for individual wells and groundwater treated at a treatment plant are within the current primary drinking water standards; therefore, arsenic will not limit the potable use of groundwater. Prior to January 2006, wells that exceed the new arsenic standard and are not treated will be phased out and replaced through new construction or rehabilitation to deliver untreated water to an existing or future groundwater treatment plant.

***Known "Principal" Contaminant Plumes.*** Principal groundwater contaminant plumes within or near the Zone 40 area are known to exist from source areas at Mather Field, Aerojet, and Boeing are shown on **Figure 2-3**. Contaminant plume data was collected from the following documents:

***Montgomery Watson Harza (MWH).*** Mather Air Force Base Annual and Fourth Quarter 2002 Sitewide Groundwater Monitoring Report. March 2003.

***Aerojet Environmental Remediation.*** Aerojet General Corp Superfund Site, Western Groundwater Cleanup 2004 Progress Report.

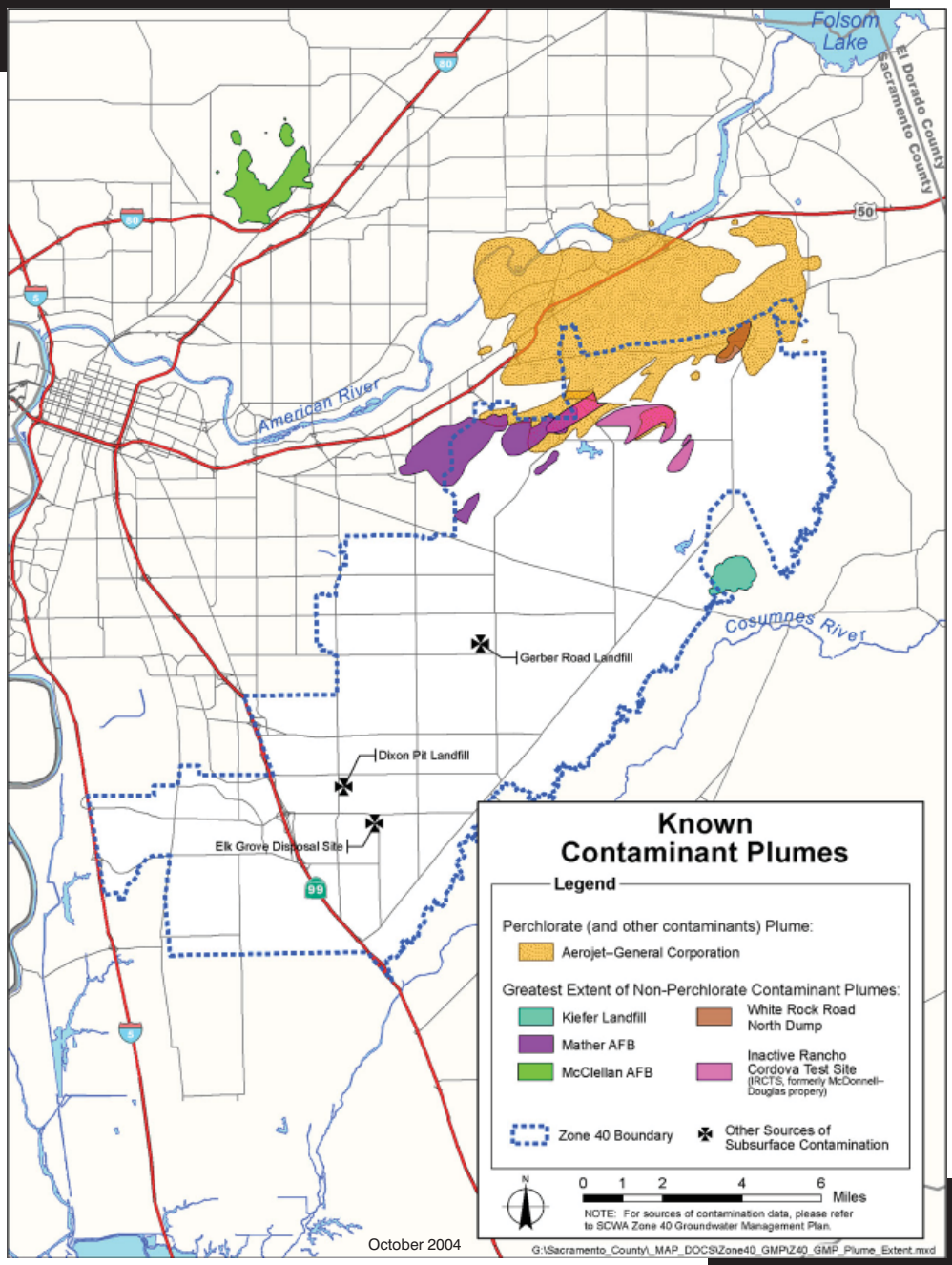
***McDonnell Douglas/Boeing Environmental Remediation.*** McDonnell Douglas Sacramento Site, American River Study Area Groundwater Monitoring Results, April – June 2002. August 2002.

***Disposal Sites.*** Integrated Waste Management Board.

***Inactive Rancho Cordova Test Site.*** Figure 1 of ENSR 2001 Report showing well locations used in model development.

Although other localized plumes exist in and around Zone 40, the principal plumes shown in **Figure 2-3** are the largest and have the greatest current impact on existing groundwater

**Figure 2-3. Principle Contaminant Plumes**




use. For the Mather Field plumes, the primary Contaminants of Concern (COCs) are tetrachloroethylene (TCE), perchloroethylene (PCE), and carbon tetrachloride. The Mather Field plume edges represent a composite COC concentration of 0.5 mg/L, which is one-tenth of the maximum contaminant level (MCL) for these constituents.

For the Aerojet and Boeing plume, the primary COCs are TCE, n-nitrosodimethylamine (NDMA), and perchlorate.

There are currently 106 active leaking underground fuel tank (LUFT) sites within Zone 40 (source: http://geotracker.swrcb.ca.gov). While many sites can be fully remediated, the aggregate impact from undetected contamination on groundwater quality in the basin cannot be determined at this time and may ultimately be considerable.

## 2.4 Recharge and Extraction of Groundwater in Sacramento County

Evaluating changes in aquifer conditions requires an understanding of the dynamic processes and interactions that are taking place as extractions and recharge of the aquifer occur. Conceptual models of the aquifer that describe induced recharge, aquifer storage, and differences between localized and regional effects on the aquifer are discussed below. These conceptual models are meant to clarify concepts; not all aspects of groundwater hydraulics are described. These models only apply to the Central Basin and adjoining basins within Sacramento County.

***Recharge.*** Groundwater in Central Sacramento County moves from sources of recharge to areas of discharge. Recharge to the local aquifer system occurs along active river and stream channels where extensive sand and gravel deposits exist, particularly along the American, Cosumnes, and Sacramento River channels. Additional recharge occurs along the eastern boundary of Sacramento County at the transition point from the consolidated rocks of the Sierra Nevada to the alluvial deposited basin sediments. This typically occurs through fractured granitic rock that makes up the Sierra Nevada foothills. Other sources of recharge within the area include deep percolation from applied surface water, precipitation, and small streams.

Changes in the groundwater surface elevation (or piezometric surface) result from changes in groundwater recharge, discharge, or extraction. In some instances, this change in groundwater elevation can induce natural recharge at locations where rivers or streams and the aquifer are hydraulically connected. To the extent that a hydraulic connection exists, as groundwater conditions change, the slope or gradient of the groundwater surface may change as well. A steeper gradient away from the stream would induce higher recharge from surface water into the aquifer.

The rate of recharge from streams that are hydraulically disconnected from the groundwater surface is indifferent to changes in groundwater elevations or gradient. This is typically true with smaller streams where the groundwater surface is located far below the streambed. In such cases, surface water percolates through the unsaturated zone to the groundwater and its rate is a function of the aquifer materials underlying the streambed and the water level in the surface stream. The rate of infiltration under these conditions is not controlled by the change in elevation of the underlying groundwater. In the case of larger rivers, the American and Sacramento Rivers are considered to be hydraulically connected and the Cosumnes River is considered to be hydraulically disconnected in the lower reaches of the river that flow into the Central Basin. This GMP recognizes the importance of maintaining hydraulic connections with the larger river sources for sustainability of the groundwater supply and the environmental benefits of keeping water flowing in the riverbed.

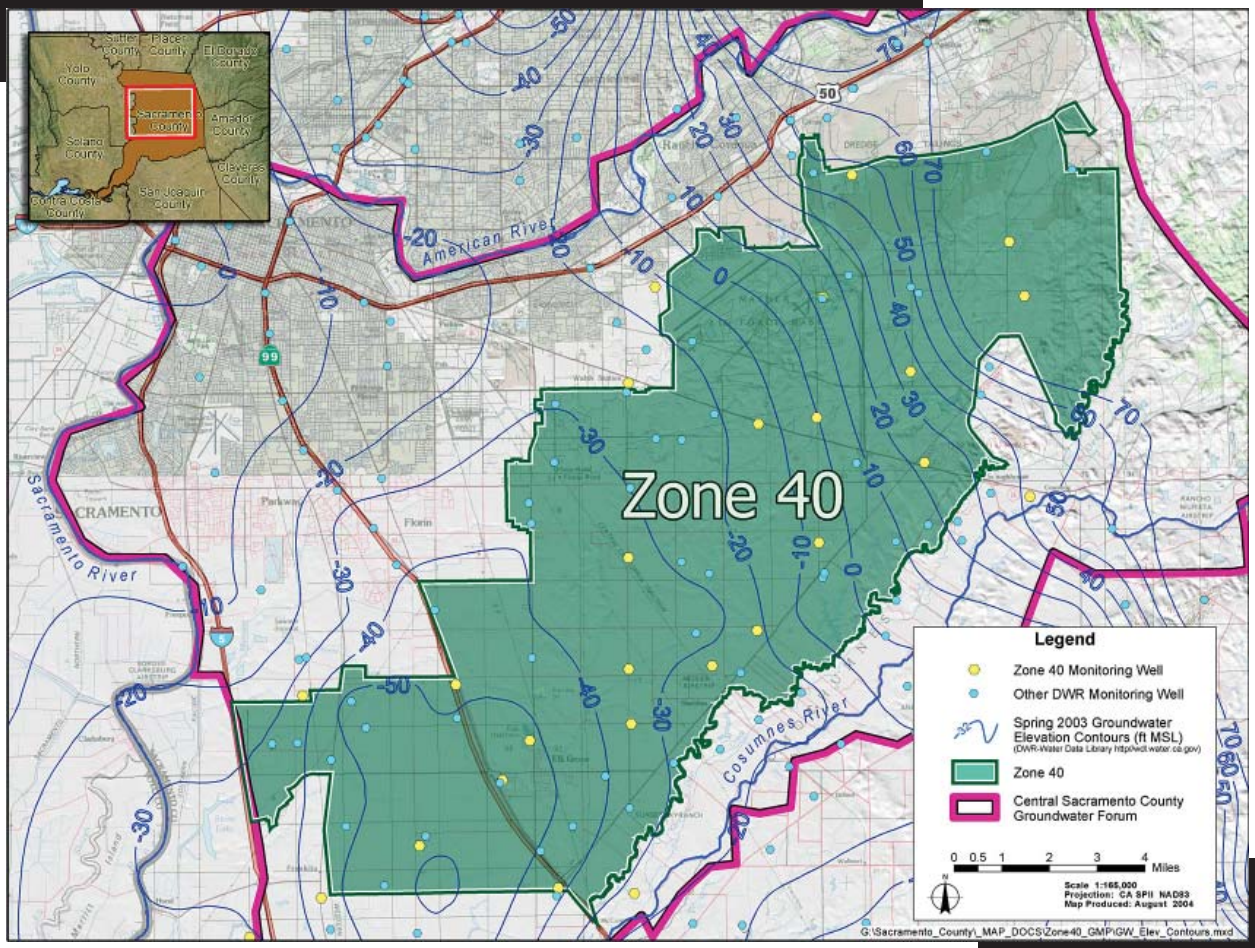
***Localized Impacts of Groundwater Extraction.*** When extractions occur from a single well, a concentrated localized cone of depression is formed around the well. The shape and depth of the localized cone of depression depends on several factors including, but not limited to: (1) the rate of extraction, (2) the presence of nearby sources of recharge and/or extraction, (3) aquifer transmissivity, (4) natural impervious barriers or earthquake faults, and (5) the "confined" or "unconfined" state of the aquifer, (i.e., storage coefficient). Over time, extraction from an unconfined aquifer can de-water the aquifer around the well. However, when extraction ceases, the water level within the aquifer typically rebounds to its pre-extraction condition.

A confined or semi-confined aquifer behaves differently since the water is under pressure from a recharge source. Instead of de-watering the aquifer, a change in confining pressure occurs as a result of extractions; the aquifer remains saturated. In a confined aquifer, the pressure or piezometric surface elevation decline is more dramatic than in an unconfined aquifer; however, the recovery to pre-extraction conditions is typically much faster.

***Regional Impacts of Groundwater Extraction.*** Large regional cones of depression can form in areas where multiple groundwater extraction wells are in operation. The location and shape of a regional cone of depression is influenced by the same factors as a single well. The regional cone of depression within Zone 40 is shown on **Figure 2-4**, as part of a water elevation contour map for spring of 2003. This map was prepared using water elevation data from DWR's water data library available on-line at: http://wdl.water.ca.gov. The map contours were determined using the Inverse Distance to a Power method.

Fluctuations in regional cones of depression are measured over years and result from: (1) changes in recharge, and (2) changes in extractions from increasing and decreasing

**Figure 2-4. Spring 2003 Groundwater Elevation Contours**




water demands. For example, a sequence of successive dry years can decrease the amount of natural recharge to the aquifer. If this is coupled with a coinciding increase in groundwater extraction, an imbalance is created between natural recharge and extractions. Consequently, groundwater elevations would decrease in response to this imbalance. Over time, the shape and location of the aquifer's regional cone of depression fluctuates.

The Inverse Distance to a Power gridding method was used to contour the water elevation data posted on **Figure 2-4**. This contouring method is a weighted average interpolator and is best used when there is a uniform distribution of data. With Inverse Distance to a Power, data are weighted during interpolation such that the influence of one point relative to another declines with distance from the grid node. Normally, Inverse Distance to a Power behaves as an exact interpolator. When calculating a grid node, the weights assigned to the data points are fractions, and the sum of all the weights are equal to 1.0.

Intensive use of the groundwater basin has resulted in a general lowering of groundwater elevations near the center of the basin away from the sources of recharge. As early as 1968, pumping depressions were evident in the Central Basin. These depressions have grown and coalesced into a single cone of depression centered in the southern portion of the Zone 40 area as shown in **Figure 2-4**.

***Groundwater Level Trends.*** A review of 11 long-term hydrographs as shown in **Figure 2-5** shows a pattern of groundwater level trends through much of Zone 40. Groundwater elevations generally declined consistently from the 1950s-1960s to about 1980 on the order of 20-30 feet. From 1980 through 1983 water levels recovered by about 10 feet and remained stable until the beginning of the 1987 through 1992 drought. From 1987 until 1995, water levels declined by about 15 feet. From 1995 to 2003 most water levels recovered

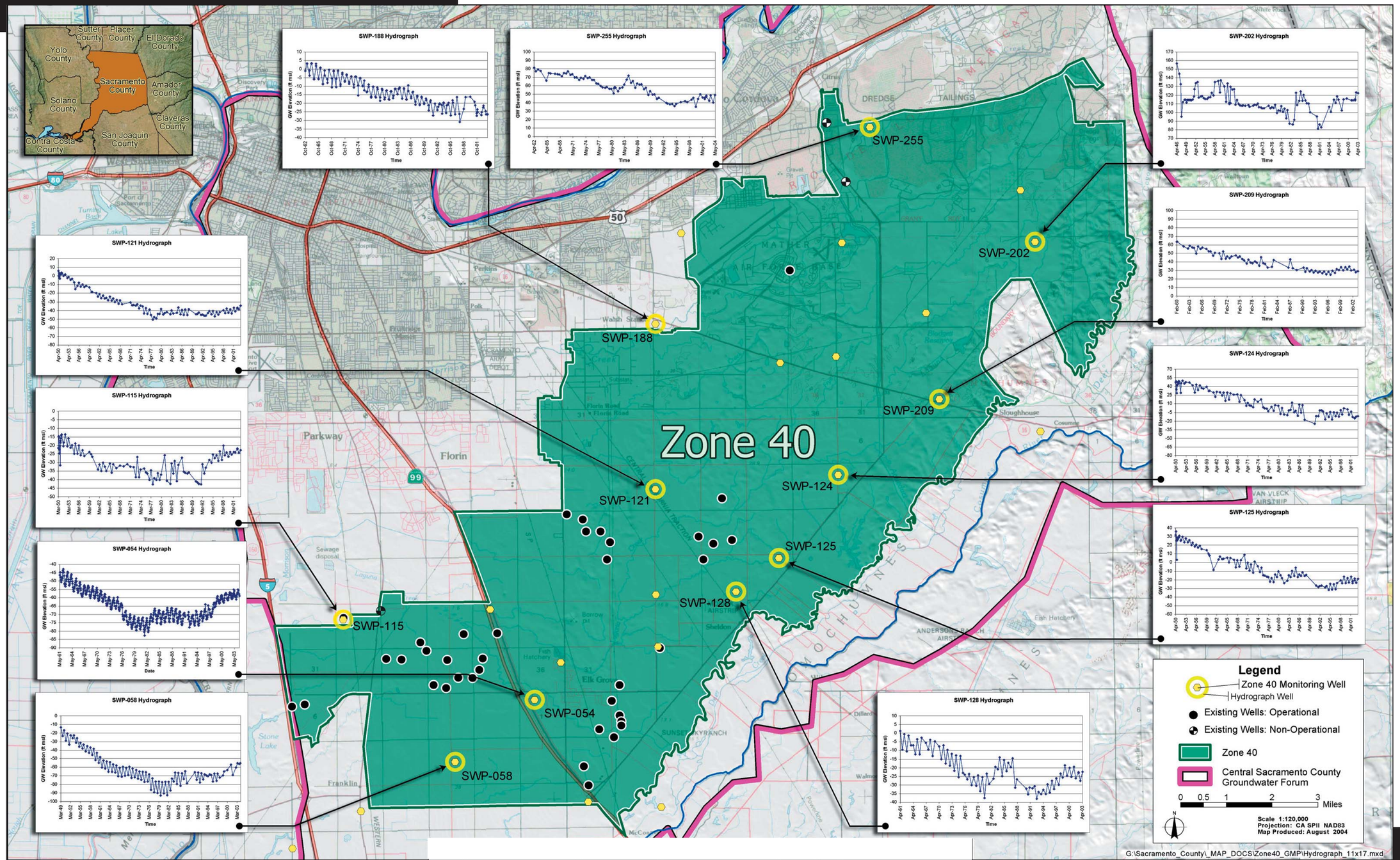
generally higher than levels prior to the 1987 through 1992 drought. Much of this recovery can be contributed to the higher use of surface water in Zone 40 and the fallowing of agricultural areas as they transitioned into new development areas in accordance with the General Plan.

***Southern Area.*** The southern portion of Zone 40 extends from Interstate 5 to just east of Highway 99. Groundwater level trends in this area can be seen in hydrographs from wells SWP-115, SWP-058, and SWP-054 shown on **Figure 2-5**. The hydrographs for these wells show groundwater levels varying between 10 and 90 feet below mean sea level (MSL) between wells.

***Central Area.*** The central portion of Zone 40 is the area between Highway 99 and Highway 16 (Jackson Highway). Groundwater level trends in this area can be seen in hydrographs from wells SWP-121, SWP-124, SWP-125, SWP-128, SWP-188 shown on **Figure 2-5**. The hydrographs for these wells show groundwater levels varying between 40 feet above to 40 feet below MSL between wells.

***Northern Area.*** The northern portion of Zone 40 is the area north of Highway 16 (Jackson Highway). The general trend in this area is more stable than the other areas. Water level trends in this area can be seen in hydrographs from wells SWP-255, SWP-202, and SWP-209. The hydrographs for these wells show declines of about 40 feet since 1960.

FIGURE 2-5. Zone 40 Groundwater Elevation Hydrographs



## 2.5 SURFACE WATER SUPPLIES

Current water supply for Zone 40 is groundwater, recycled water, and surface water. To date, surface water has met less than 12% of Zone 40's water demands each year. SCWA's surface water contracts provide for two points of diversion, at or near the mouth of the American River or just north of the community of Freeport on the Sacramento River.

Approximately 4,500 AF/year of surface water (a portion of SCWA's 15,000 AF/year CVP contract water [P.L. 101-514]) is diverted at the City of Sacramento's Sacramento River Water Treatment Plant (SRWTP). This water is then wheeled through the City of Sacramento's conveyance facilities to a connection with Zone 40 facilities in Franklin Boulevard for use in the southern portion of Zone 40. In addition, there is approximately 2,066 AF/year of surface water used in the Sunrise Corridor service area which is purchased from American States Water Company as a short-term replacement for groundwater capacity lost as a result of contamination by Aerojet. Major surface water sources in the vicinity of Zone 40 include the American River to the north, Sacramento River to the west, and Cosumnes River to the southeast. Other surface water sources within or near Zone 40 include Deer Creek, which is tributary to, and parallels the Cosumnes River on the north, and the Morrison Creek Stream Group (Morrison, Elder, Gerber, Unionhouse, Florin, and Laguna creeks), which generally flow in a southwesterly direction across the Central Basin. This section describes the major surface water supplies available to Zone 40. **Table 2-1** is excerpted from the WSMP to indicate the existing and future surface water supplies being pursued at this time. The description for each of the supplies is provided in the table notes below.

**Table 2-1. Detail of Surface Water Supply Components**

| *Component* | | *Water Source(s)* | *Entitlement Amount (AF/year)* | *Estimated Long Term Average Use(AF/year)* | *Reliability* |
|---|---|---|---|---|---|
| Appropriative Water Supplies | | American and Sacramento River | Undetermined | 14,600 | Low |
| CVP Supplies | SMUD 1 Assignment | American River | 15,000 | 13,000 | Moderate |
| | SMUD 2 Assignment | American River | 15,000 | 13,000 | Moderate |
| | "Fazio" Water (PL 101-514) | American River | 15,000 | 13,600 | Moderate |
| Other Water Supplies | Other Transfer Water Supplies | American and Sacramento River | Undetermined | 6,400 | Variable (Moderate to High) |
| | Purchase of Water From City for Use Within the American River POU | American River | 9,300 | 9,300 | High |
| | Total Surface Water | | 87,300 | 69,900 | |

Source: WSMP

### Notes

1. Appropriative Water. SCWA has submitted an application to the State Water Resources Control Board (SWRQB) for the appropriation of water from the American and Sacramento Rivers (the Board authorized submittal of this application on May 30, 1995). This water is considered intermittent water that typically would be available during the winter months of normal or wet years. This water could be used for groundwater recharge.
2. SMUD 1 Surface Water Assignment. Under the terms of a three party agreement (SCWA, SMUD, and the City), and in accordance with SMUD's PSA, the City provides surface water to SMUD for use at two of SMUD's cogeneration facilities. SMUD, in turn, will assign 15,000 AF/year of its USBR CVP contract water to SCWA for M&I use. As the cogeneration facilities are located within the City's American River POU, authorization by State Water Resources Control Board (SWRCB) is not required. This CVP contract assignment is complete.
3. SMUD 2 Surface Water Assignment. SMUD's PSA directs SMUD to assign a second 15,000 AF/year to SCWA and for SCWA to construct groundwater facilities necessary to meet SMUD's dry year water shortages of up to 10,000 AF/year. This CVP contract assignment is complete.
4. CVP Water Public Law 101-514 ("Fazio" Water). In April 1999, SCWA obtained a CVP water service contract pursuant to PL 101-514 that provides a permanent water supply to Zone 40 of 15,000 AF/year.
5. Other Water Supplies. SCWA enters into purchase and transfer agreements with other entities that currently hold surface water rights in the north Sacramento River basin. This water could be used for groundwater recharge.
6. Purchase of Water from the City for use Within the American River POU. SCWA's PSA directs SCWA to enter into an agreement with the City whereby the City will sell surface water to SCWA for use in the portion of Zone 40 that lies within the City's American River POU.

## 2.5.1 Surface Water Conditions

### 2.5.1.1 Sacramento River

The Sacramento River drainage basin upstream of Zone 40 encompasses approximately 23,500 square miles and produces an average annual runoff of about 17,000,000 acre-feet (AF) as measured at the Freeport gaging station (below the confluence with the American River). Principal reservoirs controlling flows in the lower Sacramento River include Lake Shasta (4,552,100 AF) on the Sacramento River upstream of Redding, Trinity Lake (2,448,000 AF), which regulates deliveries made to the Sacramento River from the Trinity River basin, Lake Oroville (3,538,000 AF), and Folsom Reservoir (975,000 AF). Based on the 30-year record of data for the period 1968 through 1998, which spans a variety of water year types, individual monthly average flows have ranged from a low of 4,500 cubic feet per second (cfs) in October 1978 to a maximum of 87,000 cfs in January 1997. Overall, the average monthly flows of all 30 years range between 13,000 and 40,600 cfs, with the lowest flows occurring in October and peak flows in February. The 30-year average monthly flow during the wetter months of December through May is 32,200 cfs. During the typically drier months of June through November, the average monthly flow is 16,500 cfs.

### 2.5.1.2 American River

The American River drainage basin encompasses approximately 1,900 square miles. Folsom Reservoir is the principal reservoir in the basin with a capacity of 975,000 AF. Several smaller upstream reservoirs contribute another 820,000 AF of storage capacity. Nimbus Dam impounds Lake Natoma downstream of Folsom Dam and regulates releases from Folsom Reservoir to the lower American River. The entrance facilities to the Folsom South Canal are located along the south shore of Lake Natoma immediately upstream of Nimbus Dam. Mean annual flow in the lower American River is 3,300 cfs and the design capacity of the channel for flood flows is 115,000 cfs.

### 2.5.1.3 Cosumnes River

The Cosumnes River watershed extends from the headwaters, at an elevation of approximately 7,500 feet on the western slope of the Sierra Nevada, to the confluence with the Mokelumne River, approximately 10 miles south of the Zone 40 area. The Cosumnes River is the last major river on the western slope of the Sierra Nevada with no major dams. Minor dams on the river are used for recreational purposes. The hydrology of the Cosumnes River has changed substantially since development of the region and was likely the source of surface water diversions for agriculture since the 1800s. Until the 1940s, the Cosumnes River flowed year-round because it received baseflow from the extensive floodplain aquifer. Historical data suggest that flow volumes in the lower basin steadily decreased from 1942 to 1982, with more frequent periods of very low or no flow. During September and October, flows in the river are 27-30 cfs at Michigan Bar. Currently, surface flow ceases in a 5- to 10-mile section of the river (between Meiss Road and State Route 99) nearly every year at the end of California's dry season. Groundwater pumping is at least partly responsible for the decline in fall flows.

The ecological values of the Cosumnes River are of interest to many state, federal, and private institutions such as CALFED, AFRP, World Heritage Site, TNC, etc. The above mentioned low flows in the Cosumnes river attribute to a degradation of fishery, wildlife, recreational, and aesthetic resources of the lower Cosumnes River. Water temperature is also an issue associated with flow impairment and poses a threat to the salmon fishery.

## 2.5.2 Surface Water Quality

Based on the most current Watershed Sanitary Surveys for the American and Sacramento Rivers, both rivers are an excellent source of supply for drinking water in the Sacramento Metropolitan Area. These source waters can be treated to meet all Title 22 drinking water standards using both conventional and direct filtration processes, as well as membranes. There are no persistent constituents in the raw waters that require additional treatment processes. However, there are seasonal treatment requirements at times for rice herbicides on the Sacramento River. This treatment requirement is addressed through chemical oxidation processes. High turbidities during storm events are a treatment challenge which can be managed by optimizing operations including adjusting chemical types and dosing schemes and by reducing plant flow (Montgomery Watson and Archibald & Wallberg, 2000).

Primary drinking water standards are set for constituents that cause adverse impact to human health. Secondary drinking water standards are set for constituents that cause unpleasing aesthetic impact on the water quality; these are

not health-based standards. There were no violations of primary or secondary drinking water standards reported in any treated surface water supply.

#### 2.5.2.1 American River

Surface water quality in the American River is a function of the mass balance of water quality from tributary streams, diversions, agricultural return flows, subsurface drainage flows, permitted discharges from municipal and industrial (M&I) sources, and urban runoff. In general, the quality of water in the American River is high from the river's headwaters to its confluence with the Sacramento River. It is low in alkalinity, low in disinfection by-product precursor materials, low in mineral content, and low in organic contamination. Limited data also indicate that the water is low in microbial contamination from Giardia and Cryptosporidium. Turbidity levels in the American River tend to be higher in the winter than summer because of higher flows associated with winter storms.

***Lower American River at the City of Sacramento's E.A. Fairbairn Water Treatment Plant.*** The City of Sacramento diverts water on the lower American River just downstream of the Howe Avenue crossing at the E.A. Fairbairn WTP. This water may be used by other entities within the American River POU on a wholesale basis. Water diverted at the plant undergoes conventional treatment and disinfection. The treated water meets all current Title 22 drinking water quality standards (Archibald & Wallberg and MWH, 2003).

#### 2.5.2.2 Sacramento River

Sacramento River water quality is largely influenced by a mass balance of water quality from upstream reservoir release operations, tributary flows (including the lower American River), agricultural runoff, subsurface drainage flows, and diversions, with other impacts from permitted discharges from M&I sources, urban runoff and spills. In general, the quality of the Sacramento River is high in the vicinity of Zone 40. There are moderate amounts of alkalinity and minerals and low levels of disinfection by-product precursors. Turbidity levels in the Sacramento River are higher during the winter and early spring months, usually associated with reservoir releases or runoff from storm events. There are very infrequent detects of organic chemicals, many of which are pesticides or herbicides from agricultural operations. Data collected to date indicate that there is a low prevalence of Giardia and Crytposporidium in the river, with protozoa only detected sporadically and at very low concentrations.

The characterization of the Sacramento River water quality in the vicinity of Zone 40 is based on reports from the SRWTP (Sacramento River Watershed Sanitary Survey; 1995 Report and 2000 Update, prepared by MWH and Archibald & Wallberg).

***Sacramento River at the City of Sacramento's SRWTP.*** The City of Sacramento diverts water from the Sacramento River just downstream of the confluence with the American River. This water can be supplied to Sacramento and other entities within the place of use on a wholesale basis.

Sacramento treats water using conventional treatment processes (i.e., flocculation, sedimentation, and filtration) with chlorine disinfection. Treated water quality meets or exceeds all federal and state drinking water standards under current operations. Sacramento includes corrosion control in their treatment of the water.

#### 2.5.2.3 Cosumnes River

Water quality in the Cosumnes River watershed is affected primarily by land-use and land cover. Monitoring data indicate that most of the river's nutrients and suspended sediments originate in the lower portion of the watershed below the Michigan Bar gauging station. Nutrient loading is strongly affected by a few point sources (e.g., wastewater treatment facilities in El Dorado County) and nonpoint sources related to urbanized areas and agricultural activity (Ahearn and Dahlgren 2000).

## 2.6 RECYCLED WATER SUPPLIES

A partnership between SCWA and the SRCSD has led to the implementation of a five million gallon per day (MGD) Water Recycling Program. This program provides recycled water for SRCSD on-site uses and for large irrigation customers in Zone 40. Recycled water is a desirable source of water for landscape irrigation and other non-potable uses because it conserves potable supplies, especially in times of drought. Recycled water also provides an alternative to discharging treated wastewater into the Sacramento River.

## 2.7 EXISTING FACILITIES

This section describes the capital facilities in Zone 40 that are owned and operated by SCWA for the treatment,

storage, and conveyance of groundwater and surface water supplies. As of late 2003, these facilities included a transmission and distribution system, approximately 46 MGD of groundwater production capacity, and 6 MGD (expandable to 11 MGD) of non-dedicated surface water treatment plant capacity from the City of Sacramento.

Water supply capital facility components have been grouped into the following categories: (1) groundwater, (2) surface water, and (3) recycled water. All facilities necessary to develop a particular supply source (i.e., wells and conveyance systems) have been grouped together under these categories. These facilities are shown in **Figure 2-6**.

## 2.7.1 Groundwater Facilities

Existing wells are shown in **Table 2-2**. These wells do not account for all wells within Zone 40's boundaries but only include those owned and operated by SCWA. Capital facilities necessary to provide groundwater production capacity include wells (including raw water piping to the treatment plant), treatment, conjunctive use facilities (storage and pumping), and conveyance to the distribution system. Treatment facilities have a maximum day input capacity ranging from approximately 2 MGD to 11 MGD per facility. Treatment plants provide iron, manganese, and possible arsenic removal.

## 2.7.2 Surface Water Facilities

Future capital facilities for surface water consist of a diversion structure on the Sacramento River near the community of Freeport, a raw water conveyance pipeline from the diversion structure to the central portion of Zone 40 (both constructed in partnership with the East Bay Municipal Utility District), an 85 MGD (ultimate capacity)

**Figure 2-6. Existing SCWA Zone 40 Facilities**

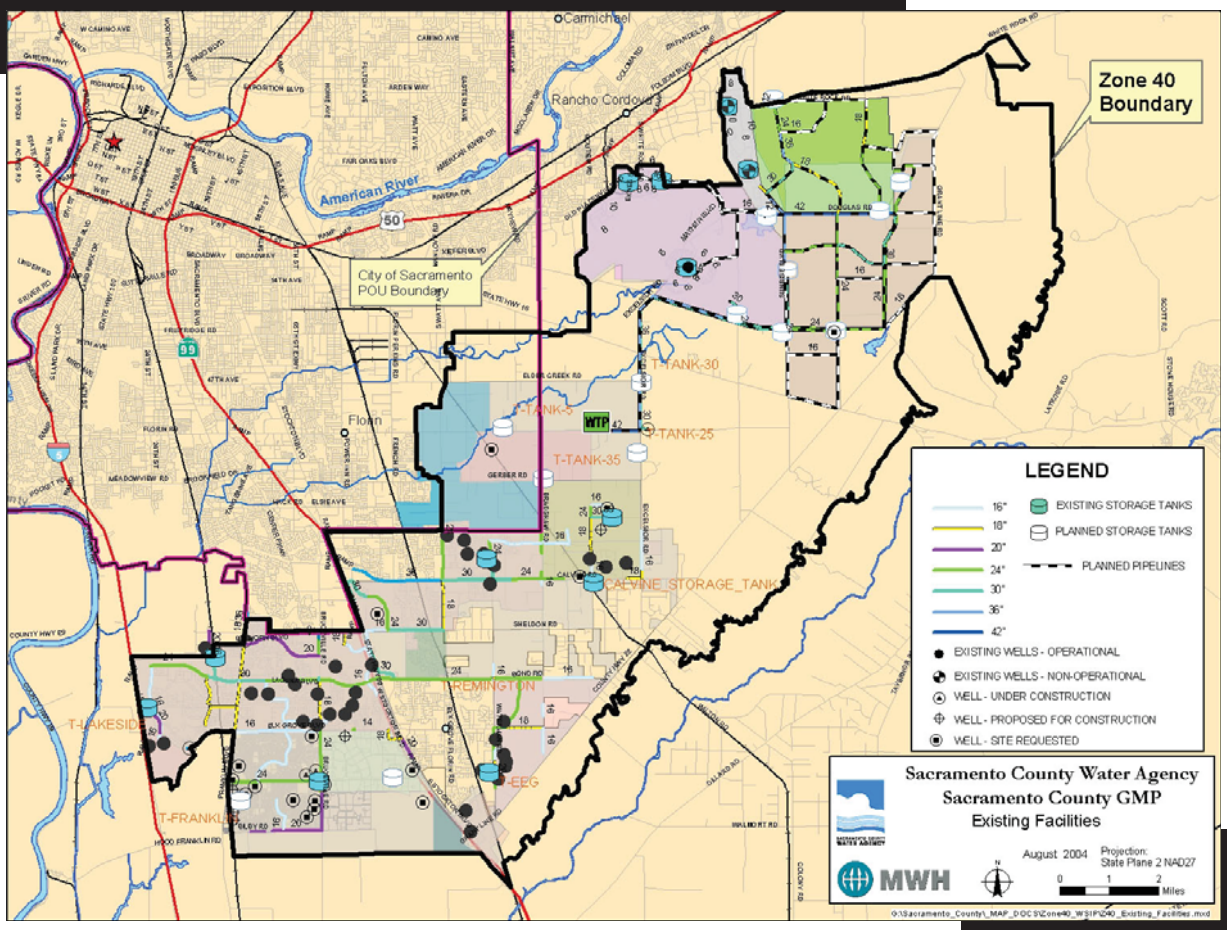


**Table 2-2. Summary of SCWA Wells Owned and Operated by Zone 41**

| DMS Well ID | Well Name | State Well ID | Well Status | Installation Date | Pump Model | Motor Type | Motor Size (Hp) | Pump Capacity (gpm) | Well Depth (feet) | Boring Depth (feet) | Drilling Method | Well Diameter | Alternate Name | Nearest Cross Street | Community Area Served | Ground Elevation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 184 | VINTAGE PARK W-060 | null | null | 05/02/88 | #N/A | #N/A | #N/A | #N/A | 190 | 220 | Reverse Rotary | 14 | Vintage Park | Vintage Park Dr. | Elk Grove | null |
| 185 | CAYMUS W-061 | 034/029-062 | Active | 06/01/88 | | | 0 | 1600 | 914 | 914 | Reverse Rotary | 16 | Caymus | Vintage Park Dr. | Elk Grove | null |
| 372 | UNION INDUSTRIAL W-027 | 06N/06E-07Q02 M | Active | 08/01/83 | Turbine | Aurora 12 RH | 125 | 1300 | 470 | 470 | Cable Tool | 16 | null | Southeast side of Elkmont Way | Elk Grove | 45 |
| 373 | SURVEY RD W-028 | 06N/06E-18A01 M | Active | 08/01/83 | Turbine | Aurora 12 RH | 125 | 1300 | 500 | 500 | Cable Tool | 16 | null | 9262 Survey Rd. | Elk Grove | 45 |
| 374 | STOCKTON BL W-029 | 06N/06E-18J02 M | Active | 08/01/83 | Turbine | Aurora 12 RH | 125 | 1300 | 490 | 490 | Cable Tool | 16 | null | Northeast side of E. Stockton Blvd. | Elk Grove | 45 |
| 375 | BRUCEVILLE W-040 | 06N/06E-18J02 M | Active | 06/01/86 | Peerless | Deepwell Turbine | 100 | 1050 | 270 | 270 | Reverse Rotary | 16 | Bruceville | West side of Bruceville Rd. | Elk Grove | 27 |
| 376 | SEASONS W-041 | 034/029-062 | Active | 07/01/86 | Peerless | Deepwell Turbine | 75 | 600 | 256 | 256 | Reverse Rotary | 16 | Seasons | North side of Seasons Drive | Elk Grove | 28 |
| 377 | BANYON W-042 | 034/029-062 | Active | 07/01/75 | Peerless | Deepwell Turbine | 75 | 760 | 245 | 245 | Reverse Rotary | 14 | Banyon | East side of Banyoh Dr. | Elk Grove | 22 |
| 378 | DUCK SLOUGH W-043 | 034/029-062 | Active | 11/04/86 | Peerless | Submersible | 100 | 1000 | 252 | 265 | Reverse Rotary | 16 | null | 5803 Laguna Park Dr. | Elk Grove | 25 |
| 379 | KILCONNELL W-044 | 034/029-062 | Active | 08/01/86 | Peerless | Deepwell Turbine | 75 | 750 | 302 | 302 | Reverse Rotary | 16 | Kilconnell | South side of Kilconnel Dr. | Elk Grove | 25 |
| 380 | ACROPOLIS W-045 | 034/029-062 | Active | 10/23/86 | Peerless | Deepwell Turbine | 100 | 1000 | 242 | 295 | Reverse Rotary | 16 | null | North side of Acropolis St. | Elk Grove | 25 |
| 381 | ASHURST W-046 | 034/029-062 | Active | 06/01/87 | Peerless | Deepwell Turbine | 100 | 1000 | 230 | 295 | Reverse Rotary | 16 | Ashurst | East side of Franklin Blvd. | Elk Grove | 20 |
| 382 | FEATHER CREEK W-047 | 034/029-062 | Active | 11/01/86 | Peerless | Submersible | 100 | 800 | 238 | 238 | Reverse Rotary | 16 | Feather Creek | South side of Feather Creek | Elk Grove | 24 |
| 383 | WADENA W-048 | 034/029-062 | Active | 07/01/75 | Ingersoll-Rand | Deepwell Turbine | 100 | 1050 | 286 | 290 | Reverse Rotary | 14 | null | East side of Wadena Way | Elk Grove | 35 |
| 384 | SOARING OAKS W-049 | 034/029-062 | Active | 07/10/75 | Ingersoll-Rand | Deepwell Turbine | 100 | 1050 | 302 | 302 | Reverse Rotary | 14 | null | West side of Soaring Oaks Dr. | Elk Grove | 30 |
| 385 | BIG HORN SOUTH W-050 | 034/029-062 | Active | 07/01/86 | Ingersoll-Rand | Deepwell Turbine | 125 | 1375 | 245 | 246 | Reverse Rotary | 16 | Big Horn South | Big Horn | Elk Grove | |
| 386 | BIG HORN CENTER W-051 | 034/029-062 | Active | 10/01/86 | Ingersoll-Rand | Deepwell Turbine | 100 | 1000 | 249 | 265 | Reverse Rotary | 16 | null | East side of Big Horn Blvd. | Elk Grove | 32 |
| 387 | BIG HORN NORTH W-052 | 034/029-062 | Active | 07/01/86 | Ingersoll-Rand | Deepwell Turbine | 100 | 940 | 240 | 240 | Reverse Rotary | 16 | Big Horn North | Big Horn | Elk Grove | |
| 388 | WHITE ROCK W-017 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 389 | RECYCLE W-018 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 390 | W-62 ANDAL | 034/029-062 | Active | 06/01/88 | | | 0 | 1100 | 296 | 296 | Reverse Rotary | 6 | null | Southwest side of Andalusian Dr. | Elk Grove | 70 |
| 391 | EQUINE W-063 | 034/029-062 | Active | null | | | 0 | 1000 | 0 | 0 | null | 0 | null | North side of Equine Dr. | Elk Grove | 70 |
| 396 | 3RD STREET W-019 | 06N/04E-14N01 M | Active | 06/01/55 | Byron Jackson | Verticle Turbine | 10 | 500 | 192 | 225 | Cable Tool | 12 | null | West side of third Street | Sacramento | 7 |
| 397 | HOOD-FRANKLIN RD (replace 398) | null | Active | 08/01/80 | Gould | Deepwell Turbine | 30 | 550 | 340 | 340 | Cable Tool | 12 | null | South side of Hood-Franklin Rd | Hood | 7 |
| 398 | HOOD-FRANKLIN RD W-020 | null | Active | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 399 | SWALE | null | Active | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 447 | OMEGA | null | Active | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 483 | WESTRAY W-064 | 034/029-062 | Active | 06/01/88 | | | 0 | 1500 | 920 | 920 | Reverse Rotary | 2 | Westray | Elk Grove-Florin | Elk Grove | |
| 484 | SHELDON NORTH W-065 | 034/029-062 | Active | 06/01/89 | | | 0 | 0 | 250 | 260 | Reverse Rotary | 16 | null | North side of Sheldon Rd. | Elk Grove | 30 |
| 499 | WATERMAN RD W-067 | 034/029-062 | Active | 06/01/00 | | | 0 | 1500 | 970 | 1009 | Reverse Rotary | 15 | null | 8246 Waterman Rd. | Elk Grove | 75 |
| 5172 | null | null | null | | #N/A | #N/A | #N/A | #N/A | 999 | 999 | | | | | | 0 |
| 5173 | CALVINE MEADOWS W-066 | null | null | 09/04/93 | #N/A | #N/A | #N/A | #N/A | 684 | 695 | Reverse Rotary | 16 | Calvine Meadows | Vineyard | Elk Grove | |
| 5174 | TILLOTSON W-068 | null | null | 04/02/97 | #N/A | #N/A | #N/A | #N/A | 921 | 950 | Reverse Rotary | 16 | Tillotson Parkway | S/E Corner Meadow Brook IV Dev. | Sacramento | |
| 5175 | PERRY RANCH W-069 | null | null | 04/02/99 | #N/A | #N/A | #N/A | #N/A | 880 | 890 | null | 16 | Perry Ranch | West of Waterman Rd. | Sacramento | |
| 5176 | DWIGHT RD RAW WATER WELL | null | null | 06/27/99 | #N/A | #N/A | #N/A | #N/A | 740 | 880 | Reverse Rotary | 16 | Dwight | S. of Dwight Rd | Sacramento | |

**Table 2-2. Summary of SCWA Wells Owned and Operated by Zone 41 cont.**

| DMS Well ID | Well Name | State Well ID | Well Status | Installation Date | Pump Model | Motor Type | Motor Size (Hp) | Pump Capacity (gpm) | Well Depth (feet) | Boring Depth (feet) | Drilling Method | Well Diameter | Alternate Name | Nearest Cross Street | Community Area Served | Ground Elevation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5177 | East Park W-073 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5178 | W. Stockton Blvd. W-074 | null | null | 09/14/99 | #N/A | #N/A | #N/A | #N/A | 206 | 225 | null | 18 | Park Meadows | W. Stockton Blvd. | Sacramento | |
| 5179 | Legends W-076 | null | null | 12/20/99 | #N/A | #N/A | #N/A | #N/A | 702 | 720 | Reverse Rotary | 16 | Legends | W. Savona Dr. | Elk Grove | |
| 5180 | LW-78 POPPY RIDG | null | null | 06/03/02 | #N/A | #N/A | #N/A | #N/A | 1305 | 1320 | Rotary | 18 | Poppy Ridge | 7510 Poppy Ridge | Elk Grove | |
| 5181 | LW-105 AZINGER | null | null | 09/14/01 | #N/A | #N/A | #N/A | #N/A | 629 | 720 | Reverse Rotary | 18 | Azinger Way | E. of Vineyard | Elk Grove | |
| 5182 | LW-106 RODR CIR | null | null | 09/21/01 | #N/A | #N/A | #N/A | #N/A | 620 | 745 | Reverse Rotary | 18 | Rodriguez Circle | S. of Gerber | Sacramento | |
| 5183 | LW-109 TERRAZO | null | null | 06/14/02 | #N/A | #N/A | #N/A | #N/A | 1334 | 1368 | Reverse Rotary | 18 | Terrazo | Terrazzo | Elk Grove | |
| 5184 | LW-110 FERRAGAMO | null | null | 07/09/02 | #N/A | #N/A | #N/A | #N/A | 1308 | 1350 | Reverse Rotary | 18 | Ferragamo | Ferragam Wy | Elk Grove | |
| 5185 | LW-113 BISHOP | null | null | 09/11/03 | #N/A | #N/A | #N/A | #N/A | 1084 | 1125 | Reverse Rotary | 18 | Bishop Ranch | 9609 Broad Stripes (Lot B) | Elk Grove | |
| 5186 | LW-114 WINDSOR D | null | null | 08/06/03 | #N/A | #N/A | #N/A | #N/A | 1195 | 1195 | Reverse Rotary | 18 | Windsor Downs | 9615 Waterman Rd. (Lot B) | Elk Grove | |
| 5245 | W-055 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5246 | W-056 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5247 | W-070 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5248 | W-075 | null | null | 09/10/99 | #N/A | #N/A | #N/A | #N/A | 258 | 270 | null | 16 | Elliot Ranch | Elk Grove Blvd. | Elk Grove | |
| 5249 | W-077 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5250 | W-007 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5251 | W-016 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5252 | W-020 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5253 | W-032 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5254 | W-081 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5256 | W-089 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5257 | W-099 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5258 | W-108 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5259 | W-B01 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5260 | W-B02 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5261 | W-B03 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5262 | W-DA | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5263 | W-M01 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5264 | W-T01 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5265 | W-T02 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5266 | W-T03 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |
| 5267 | W-T06 | null | null | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A | #N/A |

surface water treatment facility in the central portion of Zone 40, and appurtenant treated water conveyance pipelines. Currently, there is up to 11 MGD of non-dedicated capacity available at the City of Sacramento's SRWTP (the Wheeling Agreement with the City of Sacramento provides for conversion of non-dedicated capacity to dedicated capacity), and other Wheeling agreements that might be reached with the City of Sacramento.

**Figure 2-7** shows the mix of surface water and groundwater supplies used by Zone 40 beginning in 1995 and ending in 2003.

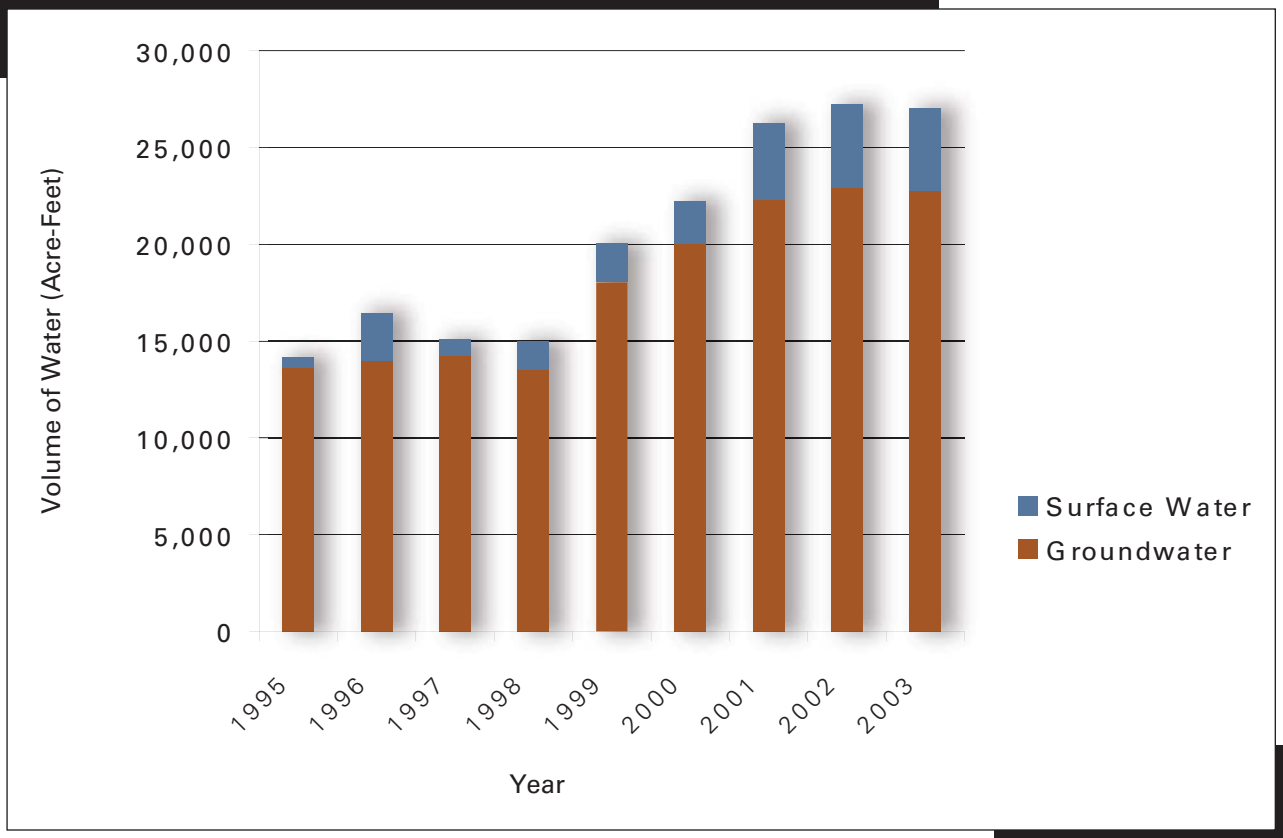
## 2.8 EFFECTS OF WFA IMPLEMENTATION

In general, the intent of the WFA is to implement a conjunctive use plan that will increase the use of groundwater in dry years and reduce surface water diversions. The decrease in available dry year diversions is a consequence of the WFA objective to provide instream flows in the lower American River for environmental purposes. In wet years, when more surface water is available, diversion will be increased and groundwater use will be reduced, thereby promoting recharge of the basin. According to the WFA, the long-term average annual yield from the Central Basin is 273,000 AF/year. For the Zone 40 portion of the basin, a long-term average annual yield of 40,900 AF/year of groundwater has been identified in the WSMP.

## 2.9 WATER YEAR TYPES

The WFA identifies three principal water year types. These year types are based on estimated March through November unimpaired inflow into Folsom Reservoir and are categorized as wet/average years, drier years, and driest years. These criteria are used in defining the availability of surface water supplies.

**Figure 2-7. Surface Water and Groundwater Demands for Zone 40 (1995-2003)**



## 2.10 FUTURE FACILITIES AND OPERATIONS

As water demands increase through new development, the need for additional supplies and facilities become imperative. Supplies to meet these demands will come from groundwater, surface water, and recycled water.

Groundwater extraction capacity is assumed to be 126 MGD. This capacity provides some redundancy during maximum day demands in the event that little or no surface water is available in dry and critical years.

The schedule of surface water diversions for SCWA was determined using a computer model of SCWA's water system. SCWA's diversion schedule of surface water and use of groundwater and recycled water were simulated based on 70-years of historical hydrology.

In the model, SCWA's potable water demand was assumed to be 108 TAF/yr in all years, reflecting build-out demand in Zone 40. Recycled non-potable demands are assumed to be 4.4 TAF/yr. Surface water delivery to Zone 40 was comprised of up to 11 MGD of the City of Sacramento's SRWTP's capacity and SCWA's 85 MGD Central WTP. It was further assumed that the Central WTP's capacity is reduced by 20 percent during wet months of wet years to accommodate for high turbidity and scheduled maintenance.

Sources of surface water include the following:

- three CVP water supply contracts: Fazio (15 TAF/year), SMUD 1 (15 TAF/year) and SMUD 2 (15 TAF/year);
- "Excess Water", defined as appropriated water in excess of the amount required to maintain the Sacramento – San Joaquin Delta in balance; and
- water right transfers, purchases from the City of Sacramento or additional appropriated water, referred to as "Other Water."

The timing and amount of surface water available from each source is based on estimates of their reliable yield, as determined by CALSIM II modeling. CALSIM II is a generalized water resources simulation model for evaluating operational alternatives of large, complex river basins. CVP sources are assumed to be subject to deficiencies based on hydrologic conditions evaluated under CALSIM. "Other Water" supplies are considered to be the most reliable of supplies, but for the purposes of the modeling, available CVP water and Excess Water are utilized first.

Underlying all operations scenarios is the assumption that SCWA will have access to a long-term average of 40,900 AF/year of groundwater. This value is based on calculations made during the Water Forum process and is consistent with the WFA. In years when sufficient surface water is available, groundwater can be "banked" as in-lieu storage for use during dry years. The sustainable yield objectives of the groundwater basin are met when the average long-term yield over the modeled 70-year hydrologic period does not exceed 40,900 AF/year. **Figure 2-8** illustrates how Zone 40 demands are met with the various water supply contracts and groundwater. This figure assumes build-out demands and available surface water supplies with shortages made up with groundwater. Recycled water is not shown on this figure since the demand already accounts for use of recycled water.

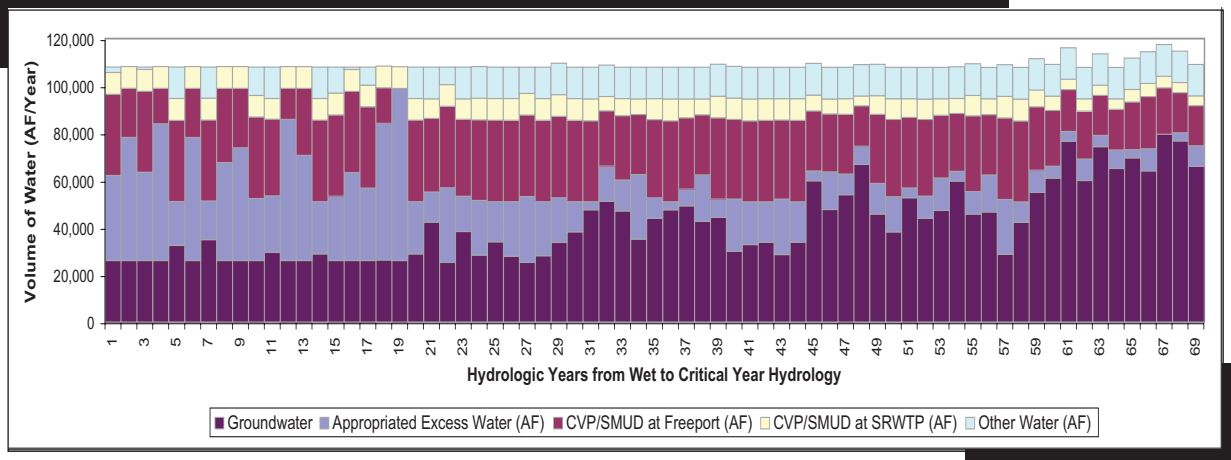
Groundwater recharge ("direct recharge") may be considered in the future as a way to enhance SCWA's conjunctive use program within the Central Basin. Direct recharge could consist of injection wells, spreading basins within the Cosumnes River floodplain, or direct discharge into the Cosumnes River to recharge the aquifers underlying the Central Basin. Water could potentially be obtained from either "Appropriative" or "Other" surface water sources, depending on availability. Treatment of surface water and approval by the RWQCB would be required prior to injection into the aquifer. The potential availability and use of recycled water within Zone 40 for landscape irrigation and other non-potable uses beyond existing agreements will be discussed by SCWA and SRCSD in the future.

## 2.11 WATER USE BY YEAR TYPE

***Water Use in Wet/Average Years.*** In wet/average years, which occur in 64 percent of the years (i.e., the 70-year hydrologic period), surface water diversions will be maximized. In those years, surface water use by SCWA within Zone 40 will total approximately 78,000 AF/year to 84,000 AF/year.

Supplemental supplies including groundwater, additional recycled water, and water conservation will make up the

**Figure 2-8. Changing Water Supplies from Wet to Critical years over the 70-Year Historical Hydrologic Conditions**

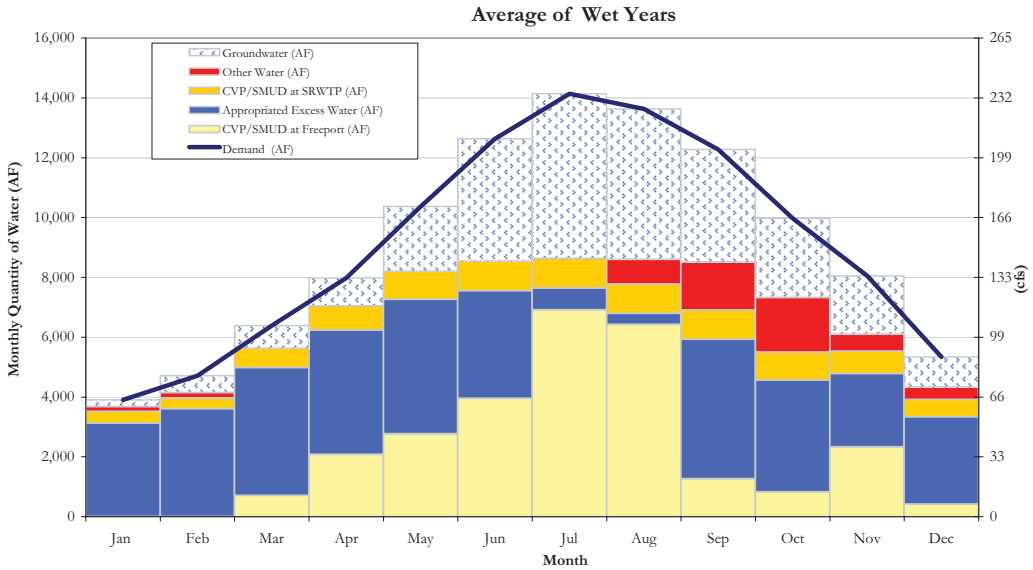



difference between demands and available surface water supplies. In wet/average years, the need for supplemental supplies is estimated to be approximately 30,000 AF/year and is generally assumed to be met with groundwater supplies. It should be noted that this is well below Zone 40's estimated long-term average use of 40,900 AF/year. **Figure 2-9** illustrates the utilization of Zone 40 supply sources in wet/average years.

***Water Use in Drier Years.*** In drier years, which occur in 28 percent of the years, surface water diversions will be less than in wet/average years, ranging from 44,000 to 78,000 AF/year. Supplemental supplies will make up the difference between demands and available surface water supplies. The need for supplemental supplies is estimated to be up to 56,000 AF/year. It should be noted that in drier years, the groundwater extraction rate exceeds Zone 40's estimated long-term average use of 40,900 AF/year. Estimates for Zone 40's water use in drier years are shown in **Figure 2-10**.

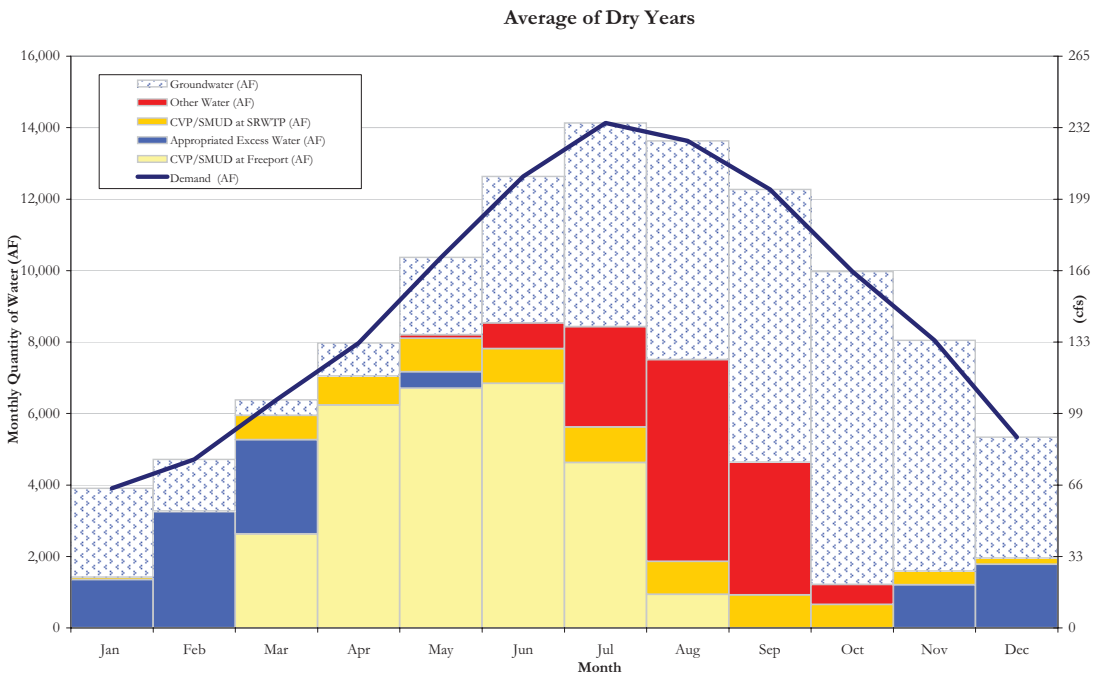
***Water Use in Driest Years.*** In the driest years, which occur in only 8 percent of the years, surface water diversions will be minimized, totaling 27,000 AF/year as shown in **Figure 2-11**. In the driest years, the need for supplemental supplies will increase to 82,000 AF/year. The majority of these supplemental supplies will be derived from groundwater extraction, exceeding the 40,900 AF/year estimated long-term average use.

**Figure 2-9. Wet/Average Year Water Utilization**



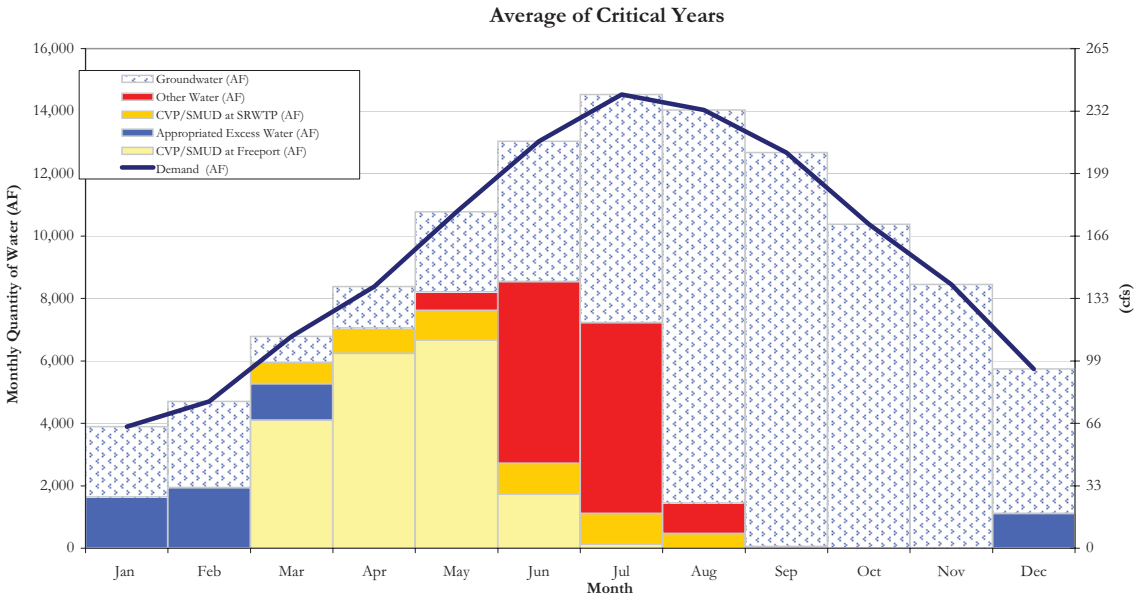

| Wet Years | Priority | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demand (AF) | | 3,910 | 4,716 | 6,385 | 7,976 | 10,369 | 12,633 | 14,134 | 13,629 | 12,271 | 9,972 | 8,051 | 5,340 | 109,384 |
| Appropriated Excess Water (AF) | 1 | 3,125 | 3,603 | 4,273 | 4,157 | 4,495 | 3,598 | 728 | 362 | 4,665 | 3,741 | 2,458 | 2,916 | 38,122 |
| CVP/SMUD at Freeport (AF) | 2 | 0 | 0 | 712 | 2,078 | 2,766 | 3,958 | 6,913 | 6,427 | 1,265 | 825 | 2,328 | 417 | 27,690 |
| Other Water (AF) | 3 | 155 | 187 | 0 | 0 | 0 | 0 | 0 | 823 | 1,606 | 1,831 | 569 | 417 | 5,587 |
| Freeport Total (AF) | | 3,280 | 3,790 | 4,985 | 6,235 | 7,262 | 7,556 | 7,641 | 7,612 | 7,536 | 6,398 | 5,354 | 3,749 | 71,399 |
| | | | | | | | | | | | | | | |
| CVP/SMUD at SRWTP (AF) | 1 | 395 | 359 | 645 | 807 | 940 | 978 | 989 | 985 | 975 | 928 | 746 | 583 | 9,331 |
| SRWTP Total (AF) | | 395 | 359 | 645 | 807 | 940 | 978 | 989 | 985 | 975 | 928 | 746 | 583 | 9,331 |
| | | | | | | | | | | | | | | |
| Groundwater (AF) | | 235 | 566 | 754 | 934 | 2,168 | 4,099 | 5,504 | 5,032 | 3,760 | 2,645 | 1,951 | 1,008 | 28,655 |
| Groundwater Storage (AF) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Groundwater Use (AF) | | 235 | 566 | 754 | 934 | 2,168 | 4,099 | 5,504 | 5,032 | 3,760 | 2,645 | 1,951 | 1,008 | 28,655 |
| Total Surface Water (AF) | | 3,675 | 4,149 | 5,631 | 7,042 | 8,202 | 8,534 | 8,630 | 8,598 | 8,511 | 7,326 | 6,100 | 4,332 | 80,730 |
| Total Water Supply (AF) | | 3,910 | 4,716 | 6,385 | 7,976 | 10,369 | 12,633 | 14,134 | 13,629 | 12,271 | 9,972 | 8,051 | 5,340 | 109,384 |
| Max Month of Groundwater | | 285 | 4,547 | 754 | 934 | 2,168 | 4,099 | 5,504 | 5,032 | 3,760 | 7,864 | 7,241 | 4,901 | |

## Figure 2-10. Drier Year Water Utilization




| Dry Years | Priority | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demand (MGD) | | 3,910 | 4,716 | 6,385 | 7,976 | 10,369 | 12,633 | 14,134 | 13,629 | 12,271 | 9,972 | 8,051 | 5,340 | 109,384 |
| Appropriated Excess Water (AF) | 1 | 1,354 | 3,252 | 2,632 | 0 | 454 | 0 | 0 | 0 | 0 | 0 | 1,208 | 1,783 | 10,683 |
| CVP/SMUD at Freeport (AF) | 2 | 0 | 0 | 2,632 | 6,235 | 6,709 | 6,839 | 4,630 | 937 | 0 | 0 | 0 | 0 | 27,983 |
| Other Water (AF) | 3 | 0 | 0 | 0 | 0 | 99 | 717 | 2,807 | 5,649 | 3,716 | 557 | 0 | 0 | 13,545 |
| Freeport Total (AF) | | 1,354 | 3,252 | 5,265 | 6,235 | 7,262 | 7,556 | 7,437 | 6,586 | 3,716 | 557 | 1,208 | 1,783 | 52,212 |
| | | | | | | | | | | | | | | |
| CVP/SMUD at SRWTP (AF) | 1 | 65 | 17 | 681 | 807 | 940 | 978 | 989 | 924 | 921 | 655 | 376 | 170 | 7,522 |
| SRWTP Total (AF) | | 65 | 17 | 681 | 807 | 940 | 978 | 989 | 924 | 921 | 655 | 376 | 170 | 7,522 |
| | | | | | | | | | | | | | | |
| Groundwater (AF) | | 2,491 | 1,446 | 439 | 934 | 2,168 | 4,099 | 5,708 | 6,119 | 7,633 | 8,760 | 6,467 | 3,387 | 49,651 |
| Groundwater Storage (AF) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Groundwater Use (AF) | | 2,491 | 1,446 | 439 | 934 | 2,168 | 4,099 | 5,708 | 6,119 | 7,633 | 8,760 | 6,467 | 3,387 | 49,651 |
| Total Surface Water (AF) | | 1,419 | 3,269 | 5,946 | 7,042 | 8,202 | 8,534 | 8,426 | 7,510 | 4,637 | 1,212 | 1,584 | 1,953 | 59,734 |
| Total Water Supply (AF) | | 3,910 | 4,716 | 6,385 | 7,976 | 10,369 | 12,633 | 14,134 | 13,629 | 12,271 | 9,972 | 8,051 | 5,340 | 109,384 |
| Max Month of Groundwater | | 3,910 | 4,716 | 439 | 934 | 2,168 | 4,099 | 8,764 | 13,629 | 12,271 | 9,972 | 8,051 | 5,340 | |

**Figure 2-11. Driest Year Water Utilization**




| Critical Years | Priority | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Demand (MGD) | | 3,890 | 4,696 | 6,785 | 8,376 | 10,770 | 13,034 | 14,534 | 14,030 | 12,671 | 10,372 | 8,452 | 5,740 | 113,350 |
| Appropriated Excess Water (AF) | 1 | 1,634 | 1,935 | 1,170 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,112 | 5,850 |
| CVP/SMUD at Freeport (AF) | 2 | 0 | 0 | 4,095 | 6,235 | 6,667 | 1,735 | 125 | 0 | 0 | 0 | 0 | 0 | 18,856 |
| Other Water (AF) | 3 | 0 | 0 | 0 | 0 | 595 | 5,822 | 6,104 | 978 | 0 | 0 | 0 | 0 | 13,498 |
| Freeport Total (AF) | | 1,634 | 1,935 | 5,265 | 6,235 | 7,262 | 7,556 | 6,228 | 978 | 0 | 0 | 0 | 1,112 | 38,205 |
| | | | | | | | | | | | | | | |
| CVP/SMUD at SRWTP (AF) | 1 | 0 | 0 | 681 | 807 | 940 | 978 | 989 | 466 | 52 | 0 | 0 | 0 | 4,912 |
| SRWTP Total (AF) | | 0 | 0 | 681 | 807 | 940 | 978 | 989 | 466 | 52 | 0 | 0 | 0 | 4,912 |
| | | | | | | | | | | | | | | |
| Groundwater (AF) | | 2,256 | 2,761 | 839 | 1,335 | 2,568 | 4,499 | 7,317 | 12,586 | 12,620 | 10,372 | 8,452 | 4,629 | 70,234 |
| Groundwater Storage (AF) | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Groundwater Use (AF) | | 2,256 | 2,761 | 839 | 1,335 | 2,568 | 4,499 | 7,317 | 12,586 | 12,620 | 10,372 | 8,452 | 4,629 | 70,234 |
| Total Surface Water (AF) | | 1,634 | 1,935 | 5,946 | 7,042 | 8,202 | 8,534 | 7,217 | 1,444 | 52 | 0 | 0 | 1,112 | 43,117 |
| Total Water Supply (AF) | | 3,890 | 4,696 | 6,785 | 8,376 | 10,770 | 13,034 | 14,534 | 14,030 | 12,671 | 10,372 | 8,452 | 5,740 | 113,350 |
| Max Month of Groundwater | | 3,890 | 4,696 | 839 | 1,335 | 2,568 | 4,499 | 9,165 | 14,030 | 12,671 | 10,372 | 8,452 | 5,740 | |

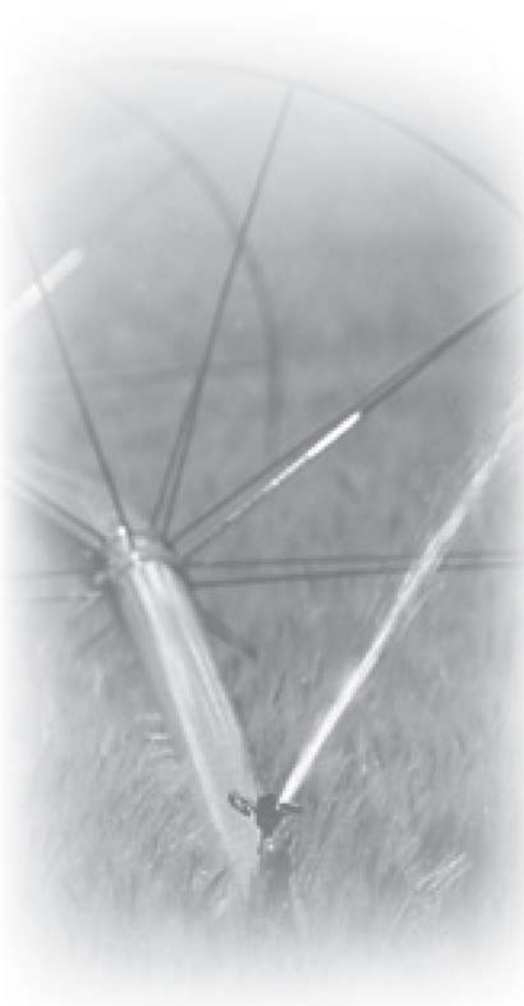
SECTION 3

# MANAGEMENT PLAN ELEMENTS

SECTION 3

*The elements of this GMP include an overall goal, a set of management objectives, and a series of plan components that discuss and identify the actions necessary for meeting the goal and objectives (see **Figure 3-1**).*

# MANAGEMENT PLAN ELEMENTS



## 3.1 GROUNDWATER MANAGEMENT GOAL

The goal of this GMP is to ensure a viable groundwater resource for beneficial uses including water for adjacent purveyors (see **Figure 3-2**), agricultural, agricultural-residential, industrial, and municipal supplies that support the WFA's co-equal objectives of providing a reliable and safe water supply and preserving the fishery, wildlife, recreational, and aesthetic values of the lower American River. In addition, this GMP partakes in the enhancement of maintaining ecological flows in the Cosumnes River.

## 3.2 BASIN MANAGEMENT OBJECTIVES

To meet the goal stated above, the SCWA has adopted five specific basin management objectives (BMOs). These BMOs include the following:

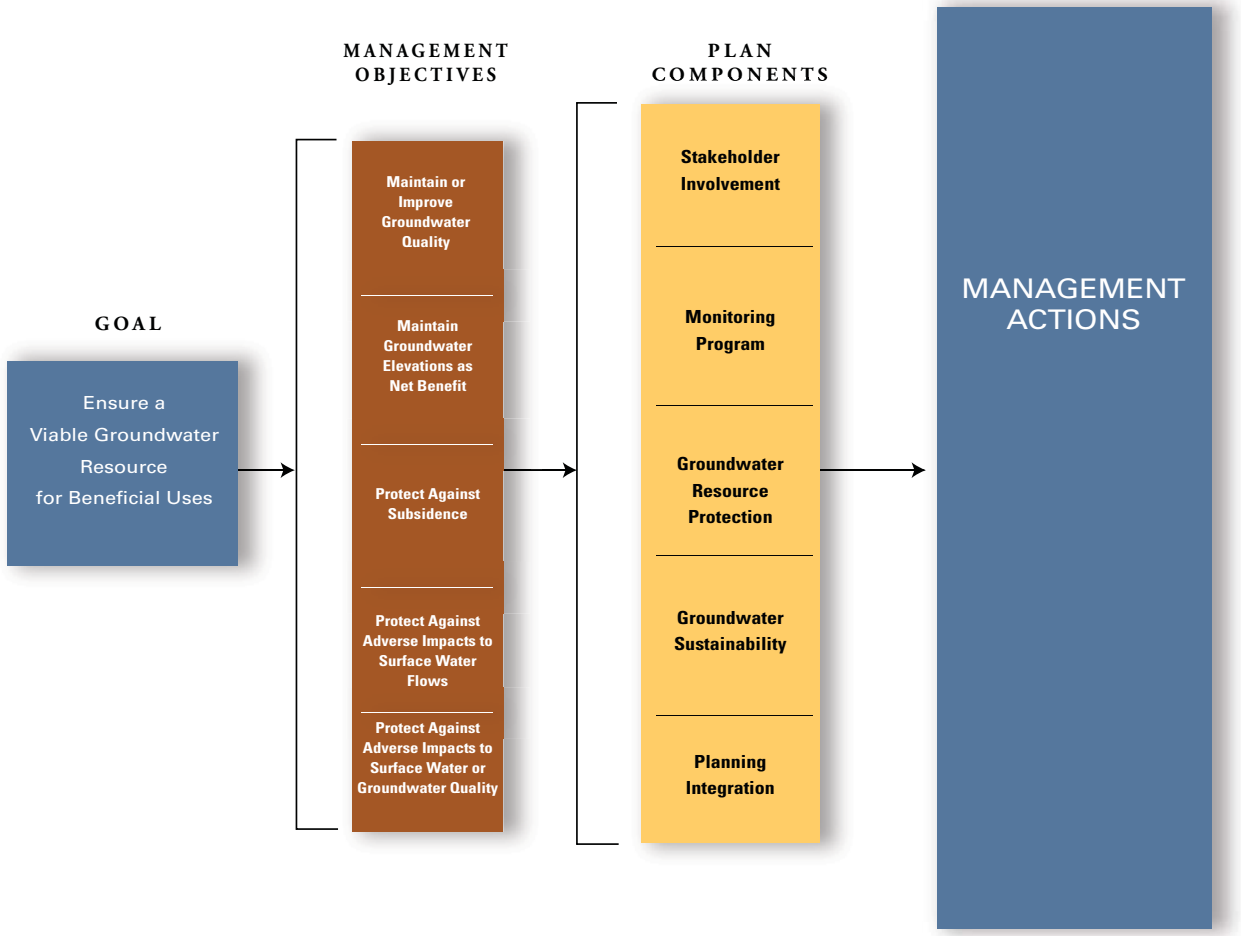
**Maintain or improve groundwater quality in the Zone 40 area for the benefit of basin groundwater users.** The groundwater supplied for potable use by Zone 40 meets all public health criteria.Within the basin, there are documented occurrences of large-scale groundwater contamination. Zone 40 will make use of groundwater within the basin that is not hindered by contamination, and that such use does not cause degradation of the quality of the resource either at the contamination sites or from naturally occurring contaminants present in the groundwater. Where groundwater contamination is currently documented or if it occurs in the future, Zone 40 will coordinate and cooperate with appropriate state and federal regulatory agencies and with other interested parties. Zone 40 will pursue all actions within its powers that result in the containment and eventual remediation of the contaminant.

**Maintain groundwater elevations that result in a net benefit to basin groundwater users.** Over the past several decades, extensive groundwater pumping by agriculture and more recently urban development has resulted in a persistent cone of depression in the southern Zone 40 area. Due to recent fallowing of agricultural lands and the importation of surface water into Zone 40, groundwater elevations at or near the cone of depression (**Figure 2-4**) have stabilized and in some areas recovered. SCWA understands

that lowering the aquifer can have adverse impacts on all groundwater users ranging from increased energy costs to the need to deepen existing private and public wells or even construct new wells. Full implementation of the conjunctive use program in the basin may result in short-term water levels being drawn down below previous historical lows, (this is a result of additional groundwater extraction during the drier and driest years). Zone 40 intends that the impacts during these times be quantified and then minimized so that overall groundwater levels in the basin do not degrade over time from their present condition.

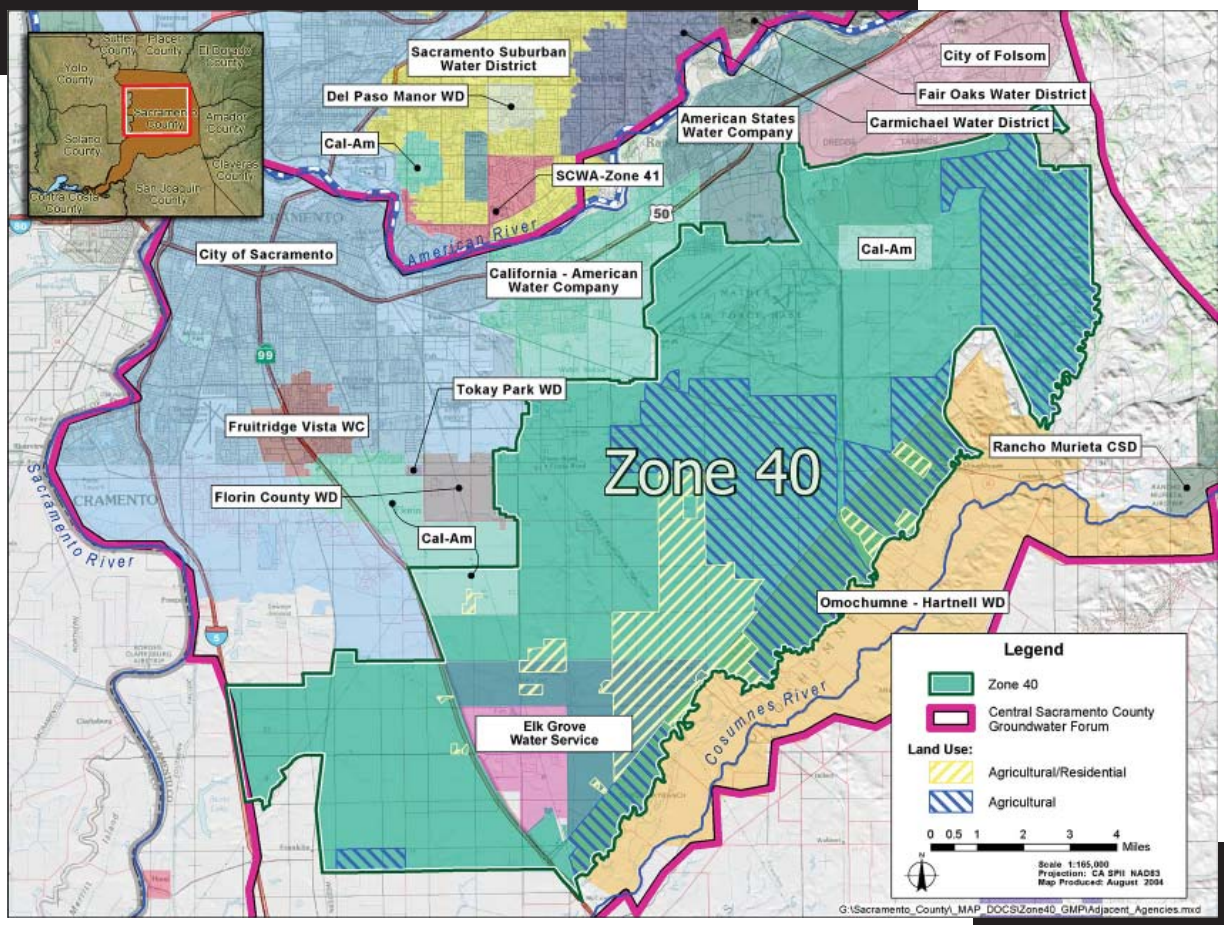
**Protect against any potential inelastic land surface subsidence.** Land subsidence can cause significant damage to essential infrastructure. Historic land surface subsidence within Zone 40 has been minimal, with no known significant impacts to existing infrastructure. Given the historical trends, the potential for land surface subsidence from groundwater extraction in the Central Basin appears remote. However, Zone 40 intends to cooperate with adjacent groundwater management agencies such as SGA to monitor for potential land surface subsidence. If inelastic subsidence is documented in conjunction with declining groundwater elevations, Zone 40 will investigate and take appropriate actions to avoid adverse impacts.

**Figure 3-1. Organization of Management Plan Elements**




Source: Graphic is taken from the Sacramento Groundwater Authority GMP

Figure 3-2. Groundwater Users within Zone 40 Boundaries




**Protect against adverse impacts to surface water flows in the American, Cosumnes, and Sacramento rivers.** Among other important uses, the American, Cosumnes, and Sacramento rivers provide habitat for a variety of fish and wildlife species. Zone 40 is committed to the objectives of the WFA, including the objective to protect and enhance the lower American River. Important elements of the WFA include commitments to reduce lower American River diversions during dry years and to not exceed agreed upon groundwater extractions of 273,000 AF/year on average. In addition, Zone 40 plans to monitor and evaluate in cooperation with SGA and others the relationship (if any) between groundwater pumping and adjacent river or stream flows.

In addition to the American Rivers this GMP includes the goals of restoring and preserving the fishery, wildlife, recreational, and aesthetic resources of the lower Cosumnes River and assuring a stable supply of water for agriculture in the lower Cosumnes River floodplain area.

**Protect against adverse impacts to water quality resulting from interaction between groundwater in the basin and surface water flows in the American River and Sacramento River.** In most natural settings, groundwater is higher in TDS and most other constituents than surface water. At the present time, the flow regime is such that groundwater is not discharging to the river systems (i.e., rivers in the region are termed as losing streams to the groundwater) in the Zone 40 area. It is possible that future actions could temporarily alter that condition. It is Zone 40's intent that controllable operations of the groundwater system do not negatively impact the water quality of the area's rivers and streams. Zone 40 will seek to gain a better understanding in cooperation with SGA and others of potential impacts of the discharge of local-area groundwater to surface water channels.

## 3.3 GMP COMPONENTS

The GMP includes a variety of components that are required by CWC § 10753.7, recommended by DWR Bulletin 118 (2003), optional under CWC § 10753.8, and other components that Zone 40 has already begun. These components can be grouped into five general categories: (1) stakeholder involvement, (2) monitoring program, (3) groundwater resource protection, (4) groundwater replenishment, and (5) planning integration. Each category and its components are presented in this section. Under each component is a discussion, proposed actions, and identification of the objectives toward which the component is directed.

## 3.4 COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT

The management actions taken by SCWA may have a wide range of impacts on a broad range of individuals and agencies that ultimately have a stake in its successful management of the basin. The local consumer may be most concerned about water rates or assurances that each time the tap is turned a steady, safe stream of water is available. To the industrial, agricultural, or agricultural-residential private well owner, they want to make sure their wells are safe from dewatering and degradation of water quality, and that energy costs do not increase significantly. To large state and federal water resource agencies, the degree to which Zone 40 can achieve local supply reliability and further banking and exchange programs provides opportunities for state and federal water programs to meet statewide needs, particularly in drier years. To address the needs of all these stakeholders, SCWA has pursued several means of achieving broader involvement in the management of the Central Basin. These include: (1) financially supporting the Water Forum Successor Effort and the CSCGF, 2) participation in the monthly CSCGF stakeholder negotiation meetings, (3) involving other local agencies within and adjacent to the Zone 40 area in the master planning efforts taking place in Zone 40, (4) using the monthly CSCGF stakeholder meetings and monthly CSCGF cluster meetings as advisory committees for development and implementation of the GMP, (5) developing relationships with state and federal water agencies, and (6) pursuing a variety of partnerships to achieve local supply sustainability. Each of these is discussed further below.

### 3.4.1 Involving the Public

Groundwater in California is a public resource, and SCWA is committed to involving the public in the development and implementation of Zone 40's GMP. The primary reason for Zone 40's creation was to undertake "... the acquisition, construction, maintenance and operation of facilities for the production, conservation, transmittal, distribution and sale of ground or surface water or both for the present and future beneficial use of the lands or inhabitants within the zone." At the time of its creation, groundwater elevations were steadily declining and development applications were moving forward with groundwater as the sole source of supply. The creation of Zone 40 also established a funding source to pay the cost of implementing a conjunctive use water program. The adoption of Ordinance No. 18 by SCWA's Board of Directors in 1986 empowered SCWA to establish fees, charges, credits, and regulations for the construction of capital facilities and the wholesale delivery of surface water and groundwater within Zone 40. The customers of Zone 40 are those connections that are within Zone 41, Cal-Am (Security Park), and the Elk Grove Water Service's "Tariff Area 2" (the older portions of Elk Grove are not within Zone 40 and rely solely on groundwater) retail service areas.

In preparing this GMP, SCWA has filed four separate notices in the Sacramento Bee (**Appendix A**). In accordance with CWC § 10753.2, a notice of intent to adopt a resolution to prepare a GMP was adopted on August 17, 2004. Upon adoption of the resolution, the text of the resolution was published in the Sacramento Bee on August 20 and 26, 2004. Additionally, a separate special meeting of the CSCGF was held on August 30, 2004 which was also open to the public. Finally, SCWA provided a public comment period on the draft GMP and noticed and held two meetings for the public to comment on the GMP, September 28 and October 5, 2004. The final GMP was adopted on November 2, 2004. Upon adoption, the text of the Resolution of Adoption was published in the Sacramento Bee on November 9 and 16, 2004.

SCWA has also demonstrated its commitment to outreach and education. In addition to all required public notification, SCWA has also accepted the GMP public outreach plan previously adopted by SGA and sponsored by DWR. The plan includes many strategies for communicating with both internal and external audiences for

various phases of the program and will be adapted to meet the needs of Zone 40 and its various stakeholders. SGA's Public Outreach Plan for Groundwater Management Program (Lucy & Company, 2003) and is included in this GMP as Appendix A.

SCWA has posted at its web site (http://www.msa.saccounty.net/waterresources/Home.asp) a copy of the WSMP, the GMP, and public notices. SCWA will continue to use its web site to distribute information on GMP implementation activities to the public.

***Actions.*** SCWA will take the following actions:

*Continue efforts to encourage public participation as opportunities arise.*

*Review and take actions as appropriate from the Public Outreach Plan during implementation of various aspects of the GMP.*

*Provide briefings to the Water Forum Successor Effort and the CSCGF on GMP implementation progress.*

*Work with stakeholders to maximize outreach on GMP activities including the use of the SCWA web site.*

## 3.4.2 Involving Other Agencies Within and Adjacent to the Zone 40 Area

Zone 40's legal boundary is limited to that of the zone boundaries. **Figure 3-2** shows Zone 40 and adjacent purveyors within the Central basin and some of the key adjacent entities that Zone 40 has been coordinating with during development of this GMP including the agricultural and agricultural-residential groundwater users. One agency within the Zone 40 boundary that is not a water purveyor is the Air Force Real Property Agency (AFRPA), which oversees remediation efforts of contaminated soil and groundwater at Mather Field. SCWA has an ongoing dialog with both the County of Sacramento Department of Economic Development, SCWA and the AFRPA to discuss issues related to land use, wellhead protection, groundwater management and remediation efforts at Mather Field. SCWA will investigate integrating some of the monitoring wells at Mather Field into the Zone 40 monitoring network (see **Section 3.5**).

The Zone 40 boundary covers approximately one-half of the Central Basin as defined by the CSCGF (**Figure 1-1**). It is the intent of this GMP to act as a platform for developing a GMP that will cover the entire Central basin once the CSCGF negotiations have ended and a managing entity has assumed authority over the basin.

In December 2003, SGA adopted a GMP that covers the organized municipal water purveyors in North Sacramento County. The Zone 40 GMP recognizes SGA as a partner in managing the Sacramento County groundwater resources and has requested their review and assistance in the preparation of this GMP.

Other adjacent interested agencies and stakeholders are the SSCAWA and TNC who own and maintain wetlands and agricultural lands along the Cosumnes River corridor. Representatives from each of these agencies participate as stakeholders in the CSCGF negotiations. SSCAWA and TNC have assisted in the preparation of this GMP.

***Actions.*** SCWA will take the following actions:

*Continue a high level of involvement as demonstrated through the development of this GMP into implementation of the plan by continued participation with the various stakeholders groups described above.*

*Provide copies of the adopted GMP and subsequent annual reports to representatives from SGA, SSCAWA, TNC, CSCGF, San Joaquin county, and the Groundwater Forum Successor Effort.*

*Meet with representatives from SGA, SSCAWA, TNC, CSCGF and the Groundwater Forum Successor Effort as needed.*

- *Coordinate meetings outside the CSCGF with agricultural and agricultural-residential self-supplied pumpers within the GMP area to inform them of SCWA's management responsibilities and activities relative to the GMP. Develop a list of their concerns and needs relative to the GMP.*
- *Coordinate meetings with other self-supplied pumpers within the GMP area to inform them of* SCWA's *management responsibilities and activities relative to this GMP. Develop a list of self-supplied groundwater pumpers concerns and needs.*

## 3.4.3 Utilizing Advisory Committees

SCWA has and will continue to use advisory committees in development and implementation of this GMP. Prior to beginning development of the GMP, the CSCGF was named as the Technical Review Committee to guide development of the GMP. The CSCGF and CSCGF "groundwater cluster" meetings met on approximately a monthly basis during the development of this GMP.

The primary groups represented on the Technical Review Committee include:

- American States Water Company
- Cal-Am Water Company
- City of Sacramento
- Agricultural-Residential
- The Nature Conservancy
- Water Forum
- SCWA
- City of Elk Grove
- Sacramento County Farm Bureau
- BIA
- Elk Grove Water Service
- Environmental Council of Sacramento
- DWR

***Actions.*** SCWA will take the following action:

*Upon adoption of the GMP, the Technical Review Committee will meet to discuss the continuation and composition of committees to guide implementation of the plan and provide these recommendations to the SCWA Board of Directors.*

## 3.4.4 Developing Relationships with State and Federal Agencies

Working relationships between SCWA and local, state, and federal regulatory agencies are critical in developing and implementing the various groundwater management strategies and actions detailed in this GMP.

SCWA has developed on-going working relationships with local, state, and federal regulatory agencies (e.g., Sacramento County, Environmental Management Department (EMD), California Department of Health Services (DHS), EPA, etc.).

***Actions.*** SCWA will take the following action:

*Continue to develop working relationships with local, state, and federal regulatory agencies, as appropriate.*

## 3.4.5 Pursuing Partnership Opportunities

Zone 40 is committed to facilitating partnership arrangements at the local, state, and federal levels. Over the past decade, the Sacramento-area water community and other local leaders have made great strides toward regional planning and collaboration on water issues. The historic WFA, which involved over 40 stakeholders and 7 years of facilitated discussions, resulted in a regional framework to balance the competing demands for increased use of surface and groundwater with the environmental needs of the lower American River through the year 2030. Several important partnerships have been formed to implement the WFA as well as provide a host of other benefits to water agencies and the customers that they serve.

While the facilities necessary to implement and expand Zone 40's conjunctive use program have been identified through the WSMP, the potential exists to expand these facilities on a basin wide level to achieve broader regional and statewide benefits. The needed facilities, however, would require substantial resources. To investigate any further opportunities would require resources provided through partnerships with potential beneficiaries.

For example, SCWA, TNC, and SSCAWA working cooperatively to enhance stream flows in the Cosumnes River.

***Actions.*** SCWA will take the following actions:

*Continue to promote partnerships that accomplish both local supply reliability and broader regional and statewide benefits.*

*Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects.*

## 3.5 COMPONENT CATEGORY 2: MONITORING PROGRAM

At the heart of this GMP is a monitoring program capable of assessing the current status of the basin and predicting responses in the basin as a result of future management actions. The program includes monitoring groundwater elevations, monitoring groundwater quality, monitoring and assessing the potential for land surface subsidence resulting from groundwater extraction, and developing a better understanding of the relationship between surface water and groundwater along the American, Cosumnes

and Sacramento rivers. Also important is the establishing of monitoring protocols to ensure the accuracy and consistency of data collected. Finally, the monitoring program includes a tool, (DMS, a.k.a. SHEDTOOL) for assembling and assessing the groundwater-related data.

## 3.5.1 Groundwater Elevation Monitoring

SCWA has compiled a significant amount of historical groundwater level data measurements extending from prior to 1950 through 2003. Sources of this data for the Zone 40 area include:

- DWR/SCWA
- USGS
- SMUD

DWR and SCWA have a program that collects bi-annual (spring and fall) groundwater level data from more than 150 wells throughout Sacramento County. SCWA uses this data to generate bi-annual groundwater contour maps for the county. However, because wells have been added and dropped from the program over time it is difficult to compare a historic contour map with a recent one. For this reason, SGA and SCWA are establishing a standardized network of wells that combines those monitored by DWR, SCWA, SGA member water purveyors, and other sources. It is SCWA's intent that the wells comprising this program be maintained as a consistent long-term network that represents overall groundwater elevation conditions in the basin. **Figure 3-3** shows the wells currently proposed for this network.

The wells were selected to provide uniform geographic coverage throughout the approximately 133 square mile Zone 40 area, and in an area around the northern, western, and southern perimeter of Zone 40. The well network was developed by first establishing a network of sampling grids using the following method:

- Overlay a matrix of evenly spaced points over the entire Zone 40 area.
- Surround matrix of points with polygons.
- Conform the boundaries of the polygons to Zone 40's boundaries and regenerate area grids.

The resulting grid, shown on **Figure 3-3**, includes approximately 30 polygons of roughly equal area of about five square miles each. The proposed set of monitoring wells[9] was selected from the DMS to represent water levels for as many polygons as possible. Individual wells were selected by:

Giving preference to wells currently in DWR's and SCWA's monitoring program. These wells were selected because (a) they have long records of historic groundwater level data and are useful in assessing trends within the groundwater basins, (b) uniform protocols were used in measuring and recording the water level data, and (c) these are typically non-producing wells, so water level readings represent relatively static levels.

Identifying other municipal and private wells with well construction information, long records of groundwater level data and giving preference to those wells with the lowest recent extraction volumes.

***Actions.*** Additional actions by SCWA will include:

*Coordinate with DWR and others to identify an appropriate group of wells for monitoring for a spring 2005 set of groundwater elevation measurements.*

*Coordinate with DWR and others to ensure that the selected wells are maintained as part of a long-term monitoring network.*

*Coordinate with DWR to ensure that the timing of water level data collection by other agencies coincides within one month of DWR and SCWA data collection. Currently DWR and SCWA collect water level data in the spring and fall.*

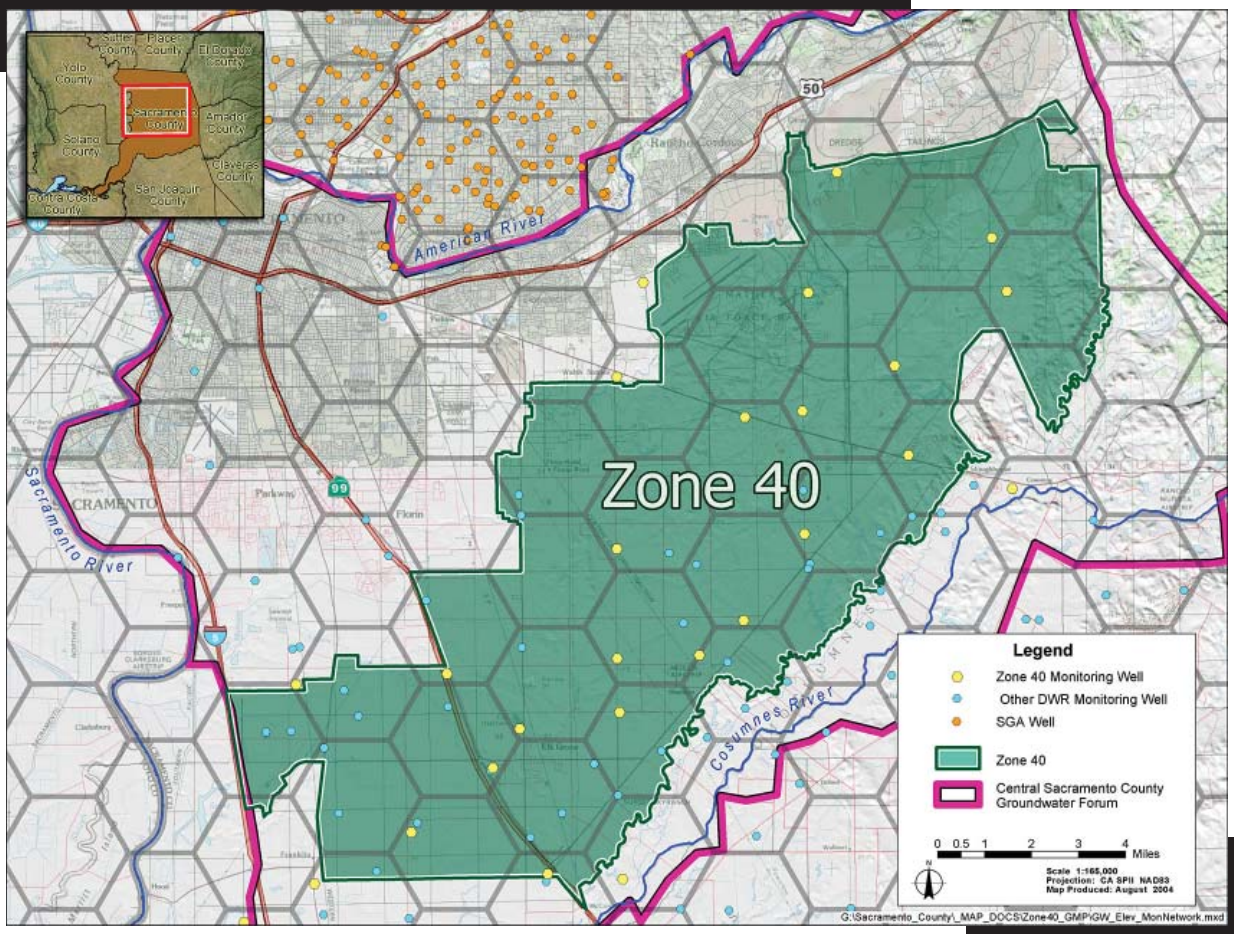
*Coordinate with other agencies to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies.*

*Coordinate with the USGS to determine the potential for integrating USGS monitoring wells constructed for the NAWQA Program into the SCWA and SGA monitoring network.*

*Consider ways to fill gaps in the monitoring well network by identifying suitable existing wells or identifying opportunities for constructing new monitoring wells.*

[9] No wells were selected east of the boundary because it is in consolidated rock outside of the groundwater basin.

**Figure 3-3. Zone 40 Groundwater Elevation Monitoring Network**




*Assess groundwater elevation trends and conditions based on the monitoring well network annually.*

*Assess the adequacy of the groundwater elevation monitoring well network annually.*

*Identify a subset of monitoring wells that will be monitored more frequently than twice annually to improve SCWA's understanding of aquifer responses to pumping throughout the year.*

## 3.5.2 Groundwater Quality Monitoring

Because most of the wells in the basin are used for public water supply, an extensive record of water quality data is available for most wells dating from about 1985 to present. SCWA has compiled available historic water quality data for constituents monitored as required by DHS under CCR Title 22. Sources of water quality data include:

- DWR
- SCWA Zone 41
- USGS

This level of monitoring is sufficient under existing regulatory guidelines to ensure that the public is provided with a safe and reliable drinking water supply. Ultimately, it may be advisable to have in place a network of shallow (less than 200 feet deep) sentry wells to serve as an early warning system for contaminants that could make their way to greater depths in the basin where Zone 40 primarily extracts groundwater. Zone 40 is working with AFRPA to identify a subset of the sentry wells located in and around the Mather Field for integration into the

Zone 40 monitoring effort. Zone 40 will also coordinate with EPA and the RWQCB, which oversees the remediation of Aerojet and Boeing's groundwater contamination and with LUSTs to identify existing dedicated monitoring wells in the basin.

**Figure 3-4** shows existing Zone 40 production wells. CCR Title 22 water quality reporting is required by DHS for each of these public drinking water sources. Zone 40's water quality monitoring network includes these wells. The water quality monitoring well network may be expanded to include additional DWR, USGS, Mather Field, Aerojet, Boeing, RWQCB, and privately owned wells based on the outcome of coordination meetings with these agencies and various land owners.

***Actions.*** The following actions will be taken by SCWA to monitor and manage groundwater quality:

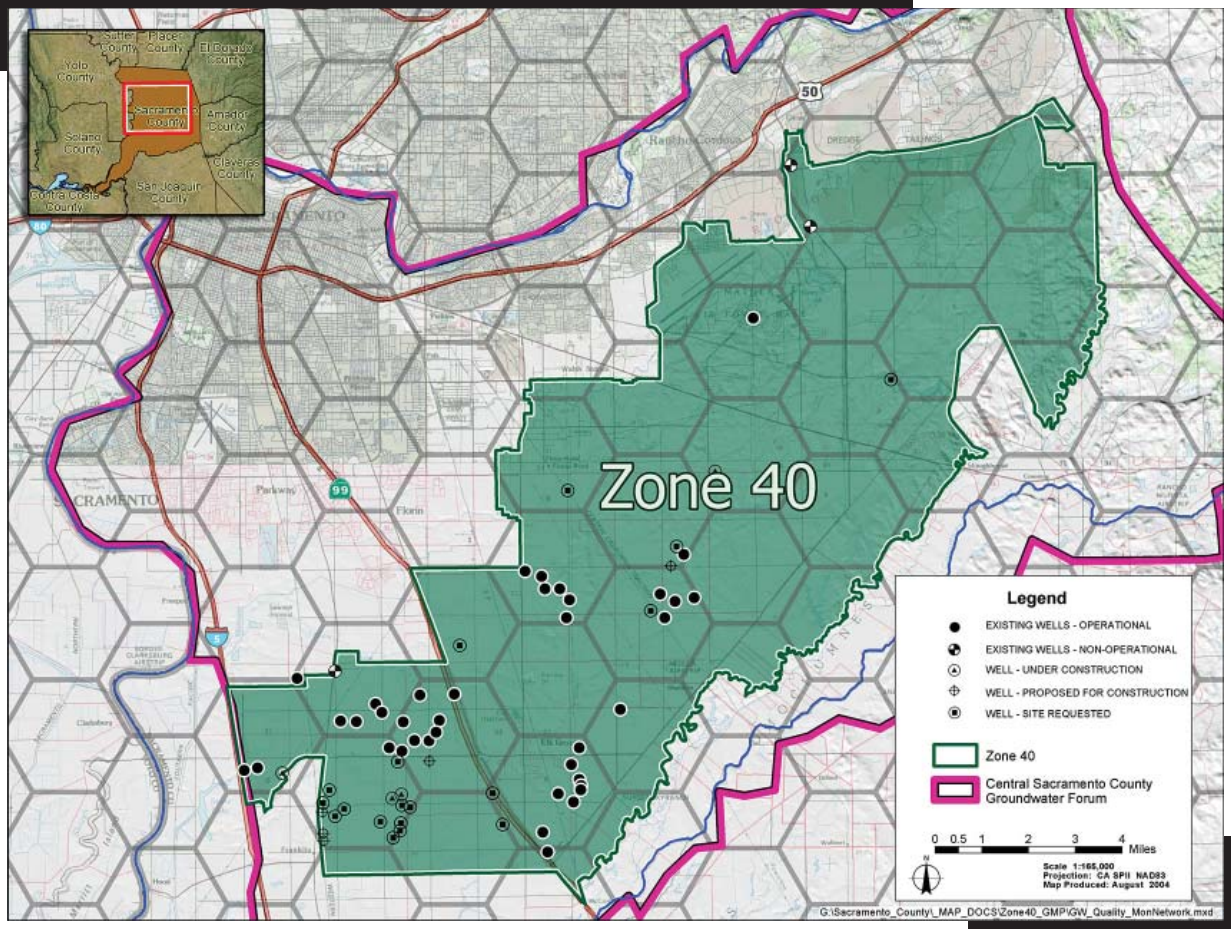
*Coordinate with cooperating agencies to verify that uniform protocols are used when collecting water quality data.*

*Coordinate with USGS to obtain historic water quality data for NAWQA wells, determine timing and frequency of monitoring under USGS program and discuss the potential for integrating USGS monitoring resources with the Zone 40 network.*

*Coordinate with local, state, and federal agencies to identify where wells may exist in areas with sparse groundwater quality data. Identify opportunities for collecting and analyzing water quality samples from those wells.*

*Assess the adequacy of the groundwater quality monitoring well network annually.*

**Figure 3-4. Existing and Proposed Wells in Zone 40 Groundwater Quality Monitoring Network**



## 3.5.3 Land Surface Elevation Monitoring

Subsidence of the land surface resulting from compaction of underlying formations affected by head (groundwater level) decline is a well-documented concern throughout much of the Central Valley. During a typical pumping season, changes in land surface elevation can be observed as a result of both elastic and inelastic subsidence in the underlying basin. Elastic subsidence results from the reduction of pore fluid pressures in the aquifer and typically rebounds when pumping ceases or when groundwater is otherwise recharged resulting in increased pore fluid pressure. Inelastic subsidence occurs when pore fluid pressures decline to the point that aquitard (a clay bed of an aquifer system) sediments collapse resulting in permanent compaction and reduced ability to store water in that portion of the aquifer.

While some land surface subsidence is known to have occurred as a result of groundwater extraction west of the Sacramento River[10], the extent of subsidence east of the Sacramento River has been minimal. DWR maintains three subsidence monitoring stations in the Sacramento Valley.

Historical benchmark elevation data for the period from 1912 through the late 1960s obtained from the National Geodetic Survey (NGS) were used to evaluate land subsidence in north Sacramento County. From 1947 to 1969 the magnitude of land subsidence measured at benchmarks north of the American River in Sacramento County ranged from 0.13 feet to 0.32 feet, with a general decrease in subsidence in a northeastward direction. This decrease is consistent with the geology of the area: formations along the eastern side of the Sacramento Valley are older than those on the western side and are subject to a greater degree of pre-consolidation making them less susceptible to subsidence. The maximum documented land subsidence of 0.32 feet was measured at both benchmark L846, located approximately two miles northeast of the former McClellan AFB, and benchmark G846, located approximately one mile northeast of the intersection of Greenback Lane and Elkhorn Boulevard.

Another land subsidence evaluation was performed in the Arden-Arcade area[11] of Sacramento County from 1981 to 1991. Elevations of nine wells in the Arden-Arcade area were surveyed in 1981, 1986, and 1991. The 1986 results were consistently higher than the 1981 results; this was attributed to extremely high rainfall totals in early 1986 that recharged the aquifer and caused a rise in actual land surface elevations. The 1991 results were consistently lower than the 1986 results; this was attributed to five years of drought immediately preceding the 1991 measurements which caused depletion of the aquifer and resulting land surface subsidence. Comparison of eight[12] of the locations indicates that seven benchmarks have lower elevations in 1991 than in 1981 and one benchmark has a higher elevation in 1991. Of the seven benchmarks with lower elevations in 1991, the maximum difference is 0.073 feet (less than one inch).

Whether this is inelastic subsidence is indeterminate from the data, but it is clear that the magnitude of the potential subsidence in the benchmarks during that period is negligible.

***Actions.*** While available data and reports indicate that land surface subsidence is not a problem in the Sacramento County area, SCWA is interested in pursuing additional possible actions to continue to monitor for potential land surface subsidence. These may include:

*Investigate the feasibility and costs of re-surveying the wells in the Arden-Arcade area that were last measured in 1991.*

*Coordinate with USGS to ascertain the suitability of the use of Interferometric Synthetic Aperture Radar (InSAR) images of Zone 40 and the surrounding area. If the technology appears suitable, identify the costs of determining ground surface elevations and identify potential cost-sharing partners.*

*Coordinate with other agencies, particularly the City and County of Sacramento and the NGS to determine if there are other suitable benchmark locations in the Zone 40 area to aid in the analysis of potential land surface subsidence.*

[10] From 1988-1992 cumulative net sediment compaction of 0.78 feet was measured at the extensometer in Yolo County between June 15, 1988 and October 1, 1992 (USGS data from the Woodland land subsidence monitoring station, Yolo County, California, water years 1988-1992, USGS Open File Report 94-494)

[11] The boundaries of the Arden-Arcade area are (1) Sacramento's city limits on the west, (2) Sacramento's city limits and the American River on the south, (3) CWD on the east, and (4) Sacramento's city limits and Sac Suburban (Northridge Service Area) on the north.

[12] One of the nine wells could not be compared between 1981 and 1991 because the benchmark was destroyed and replaced between 1981 and 1986.

## 3.5.4 Surface Water Groundwater Interaction Monitoring

The interaction between groundwater and surface water has not been extensively evaluated within the Zone 40 area. SCWA is currently aware of the following:

A recent draft decision by the State Water Resources Control Board (SWRCB, 2003) regarding the American River concluded that from Nimbus Dam to about 6,000 feet below the dam, groundwater elevations and surface water elevations were similar enough to each other that groundwater could be tributary to the American River. Beyond 6,000 feet down river from the dam, groundwater elevations are sufficiently lower than the river channel to conclude that the American River is a losing stream down to its confluence with the Sacramento River.

Groundwater modeling (described in **Section 3.8.1**) has been used to estimate flow volumes between surface water and groundwater for various hydrologic conditions.

CSUS in cooperation with DWR has recently installed several monitoring wells in and adjacent to the American River to investigate groundwater interaction with the American River and how recent U.S. Army Corp of Engineers (USACE) levee reinforcement projects might have changed the surface water-groundwater flow relationships.

In 1991, SRCSD, Sacramento County, and the City of Sacramento established the Sacramento Coordinated Water Quality Monitoring Program (CMP). Since that time, the CMP has monitored surface water quality for a variety of constituents including trace elements at several locations on the American and Sacramento rivers. The CMP monitors the Sacramento River at the Freeport Bridge and the American River at Nimbus Dam.

SCWA has been working with TNC and SSCAWA to develop a Framework Agreement for the Management of Water Resouces in the Cosumnes River Corridor. This Agreement reflects a desire to work together to actively investigate opportunities for flow restoration, conjunctive use management and enhanced recharge within the Cosumnes River corridor.

***Actions.*** SCWA will pursue actions to better understand the relationship between surface and groundwater in the Zone 40 area, including:

*Work cooperatively with SGA and TNC to compile available stream gage data and information on tributary inflows and diversions from the American, Cosumnes and Sacramento rivers to quantify net groundwater recharge or discharge between gages in the Zone 40 area.*

*Coordinate with local, state, and federal agencies to identify available surface water quality data from the American, Cosumnes and Sacramento rivers proximate to the Zone 40 area.*

*Correlate groundwater level data from wells in the vicinity of river stage data to further establish whether the river and water table are in direct hydraulic connection, and if the surface water is gaining or losing at those points.*

*Continue to coordinate with local, state, and federal agencies and develop partnerships to investigate cost-effective methods that could be applied to better understand surface water-groundwater interaction along the American, Cosumnes and Sacramento rivers.*

*Coordinate with CSUS to analyze data obtained from recently constructed monitoring wells on the CSUS campus to better understand the relationship between the groundwater basin and surface water flows at that location.*

## 3.5.5 Protocols for the Collection of Groundwater Data

Through the work completed as part of the SGA GMP, MWH has evaluated the accuracy and reliability of groundwater data collected by cooperating agencies within the Sacramento Region (MWH, 2002). The evaluation indicated a significant range of techniques, frequencies and documentation methods for the collection of groundwater level and groundwater quality data. Although the groundwater data collection protocol may be adequate to meet the needs of individual agencies, the lack of consistency yields an incomplete picture of basin-wide groundwater conditions. Other types of groundwater data collection protocols are included in **Sections 3.5.1** and **3.5.2** above.

***Actions.*** To improve the comparability, reliability and accuracy of groundwater data, SCWA will take the following actions:

*Use a Standard Operating Procedure (SOP) for collection of water level data by each of the cooperating agencies.* ***Appendix B*** *includes an SOP for Manual Water Level*

*Measurements. This SOP was prepared using guidance documents available through EPA and was included in a technical memorandum developed for SGA summarizing the accuracy and reliability of groundwater data (MWH, 2002).*

*Provide cooperating agencies with guidelines on the collection of water quality data developed by DHS for the collection, pretreatment, storage, and transportation of water samples (DHS, 1995).*

*Provide training on the implementation of these SOPs to cooperating agencies, if requested.*

### 3.5.6 Data Management System

In order for SCWA to achieve its primary objective of sustaining the groundwater resource within the Zone 40 groundwater basin, it was essential to develop a data storage and analysis tool, or DMS. The DMS was developed by MWH under contract with the USACE. Other local sponsors included SGA and its member agencies, DWR, and SCWA.

The DMS is a public domain application developed in a Microsoft Visual Basic environment and is linked to a SQL database containing Zone 40 and other Central Basin purveyor data. The DMS provides the end-user with ready access to both enter and retrieve data in either tabular or graphical formats. Security features in the DMS allow for access restrictions based on a variety of user permission levels. Data in the DMS include:

- Well construction details.
- Known locations of groundwater contamination and potentially contaminating activities.
- Long-term monitoring data on:
  - Monthly extraction volumes.
  - Water elevations.
  - Water quality.
- Aquifer characteristics based on well completion reports.

The DMS allows for the viewing of regional trends in groundwater level and quality not previously available to SCWA (see **Figures 3-5a and 3-5b** for DMS screen captures). The DMS has the capability of quickly generating well hydrographs and groundwater elevation contour maps using historic groundwater level data. The DMS also has the ability to view water quality data for CCR Title 22 required constituents as a temporal concentration graph at a single well or any constituent can be plotted with respect to concentration throughout the Zone 40 area. Presentation of groundwater elevation and groundwater quality data in these ways will be useful for making groundwater basin management decisions.

SGA and SCWA are currently in the process of establishing data transfer protocols so that groundwater data in either area (by cooperating agencies, DWR, AFRPA, USGS, etc…) can be readily appended to the database and analyzed through the DMS. Annual summaries of groundwater monitoring data will be prepared using the analysis tools in the DMS and presented in the update to the State of the Basin report (see **Section 4**).

Once the DMS is fully populated and quality-control checked a summary of existing basin conditions will be prepared. From this initial summary analyses will be performed on at least an annual basis to assess the impacts of current and future SCWA management actions on the groundwater system.

***Actions.*** To maintain and improve the usability of the DMS, SCWA will take the following actions:

*Continue to update the DMS with current water purveyor data.*

*Make recommendations to the DMS developer on utilities to add to the DMS to increase its functionality.*

## 3.6 COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION

SCWA considers groundwater protection to be one of the most critical components of ensuring a sustainable groundwater resource. In this GMP, resource protection includes both the prevention of contamination from entering the groundwater basin and the remediation of existing contamination plumes. Prevention measures include proper well construction and destruction practices, development of wellhead protection measures, and protection of recharge areas. Containment prevention also includes measures to prevent contamination from human activities as well as contamination from natural substances such as saline water bodies from entering the potable portion of the groundwater system.

## 3.6.1 Well Construction Policies

The Sacramento County Environmental Management Department (EMD) administers the well permitting program for Sacramento County. The standards for construction are identified in Sacramento County Code No. SCC-1217 as amended on April 9, 2002. In addition to general well construction standards, Sacramento County has a policy of special review by appropriate regulatory agencies for well permits within 2,000 feet of a known contaminant plume (referred to as Consultation Zones) and prohibits the drilling of new public supply wells at Mather Field or near the Aerojet or Boeing facilities. As part of the development of the DMS, the most recent extents of known contaminant plumes associated with Mather Field and the Aerojet/Boeing aerospace research centers were delineated for SCWA.

***Actions.*** SCWA will take the following actions:

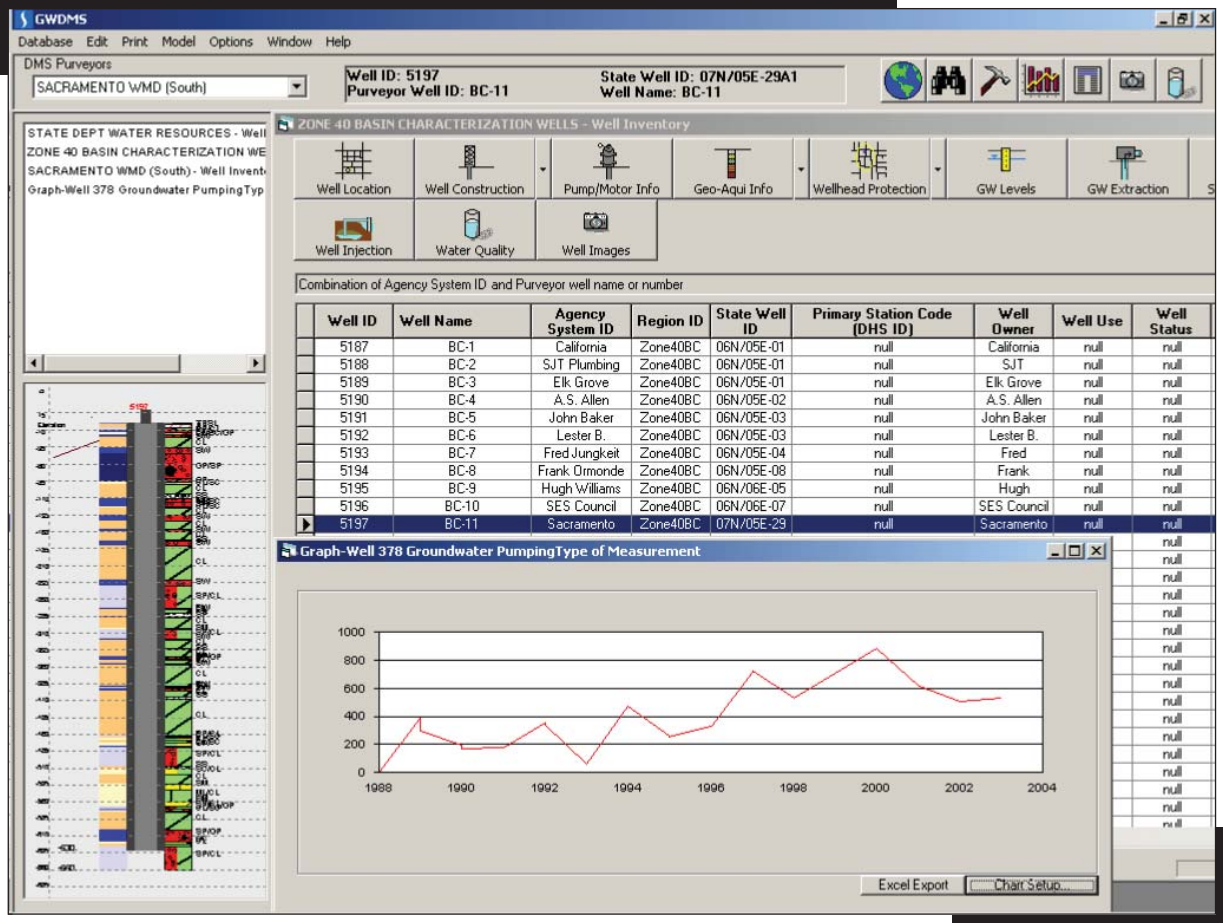
*Ensure that appropriate staff are provided a copy of the county well ordinance and understand proper well construction procedures.*

*Adhere to Sacramento County's Consultation Zone and provide a copy of the boundary of the prohibition zones to appropriate agencies within the Central Basin.*

*Provide a copy at the most recently delineated plume extents Mather Field and Aerojet/Boeing to EMD and appropriate staff for their review and possible use.*

*Coordinate with other groundwater users in the Central Basin to provide guidance as appropriate on well construction. Where feasible and appropriate, this could include the use of subsurface geophysical tools prior to construction of the well to assist in well design.*

**Figure 3-5a. DMS Screen Capture**




| Well ID | Well Name | Agency System ID | Region ID | State Well ID | Primary Station Code (DHS ID) | Well Owner | Well Use | Well Status |
|---|---|---|---|---|---|---|---|---|
| 5187 | BC-1 | California | Zone40BC | 06N/05E-01 | null | California | null | null |
| 5188 | BC-2 | SJT Plumbing | Zone40BC | 06N/05E-01 | null | SJT | null | null |
| 5189 | BC-3 | Elk Grove | Zone40BC | 06N/05E-01 | null | Elk Grove | null | null |
| 5190 | BC-4 | A.S. Allen | Zone40BC | 06N/05E-02 | null | A.S. Allen | null | null |
| 5191 | BC-5 | John Baker | Zone40BC | 06N/05E-03 | null | John Baker | null | null |
| 5192 | BC-6 | Lester B. | Zone40BC | 06N/05E-03 | null | Lester B. | null | null |
| 5193 | BC-7 | Fred Jungkeit | Zone40BC | 06N/05E-04 | null | Fred | null | null |
| 5194 | BC-8 | Frank Ormonde | Zone40BC | 06N/05E-08 | null | Frank | null | null |
| 5195 | BC-9 | Hugh Williams | Zone40BC | 06N/06E-05 | null | Hugh | null | null |
| 5196 | BC-10 | SES Council | Zone40BC | 06N/06E-07 | null | SES Council | null | null |
| 5197 | BC-11 | Sacramento | Zone40BC | 07N/05E-29 | null | Sacramento | null | null |

## 3.6.2 Well Abandonment and Well Destruction Policies

EMD administers the well destruction program for Sacramento County. The standards for well destruction are identified in Sacramento County Code No. SCC-1217 as amended on April 9, 2002. One concern expressed by SCWA and EMD is that many abandoned domestic wells have not been properly destroyed. As part of development of the DMS for SGA, DWR well records for all known wells in the basin were reviewed for reported abandonment and destruction. The wells were rated for the confidence of proper destruction based on the information provided on the report. This information was entered into the DMS. Examples of DMS screens are presented in **Figure 3-5a** and **Figure 3-5b**. The actions listed below will provide improved protection of groundwater quality within the Zone 40 area.

***Actions.*** SCWA will take the following actions:

*Complete a similar survey of abandoned wells in the Zone 40 basin and populate DMS with data.*

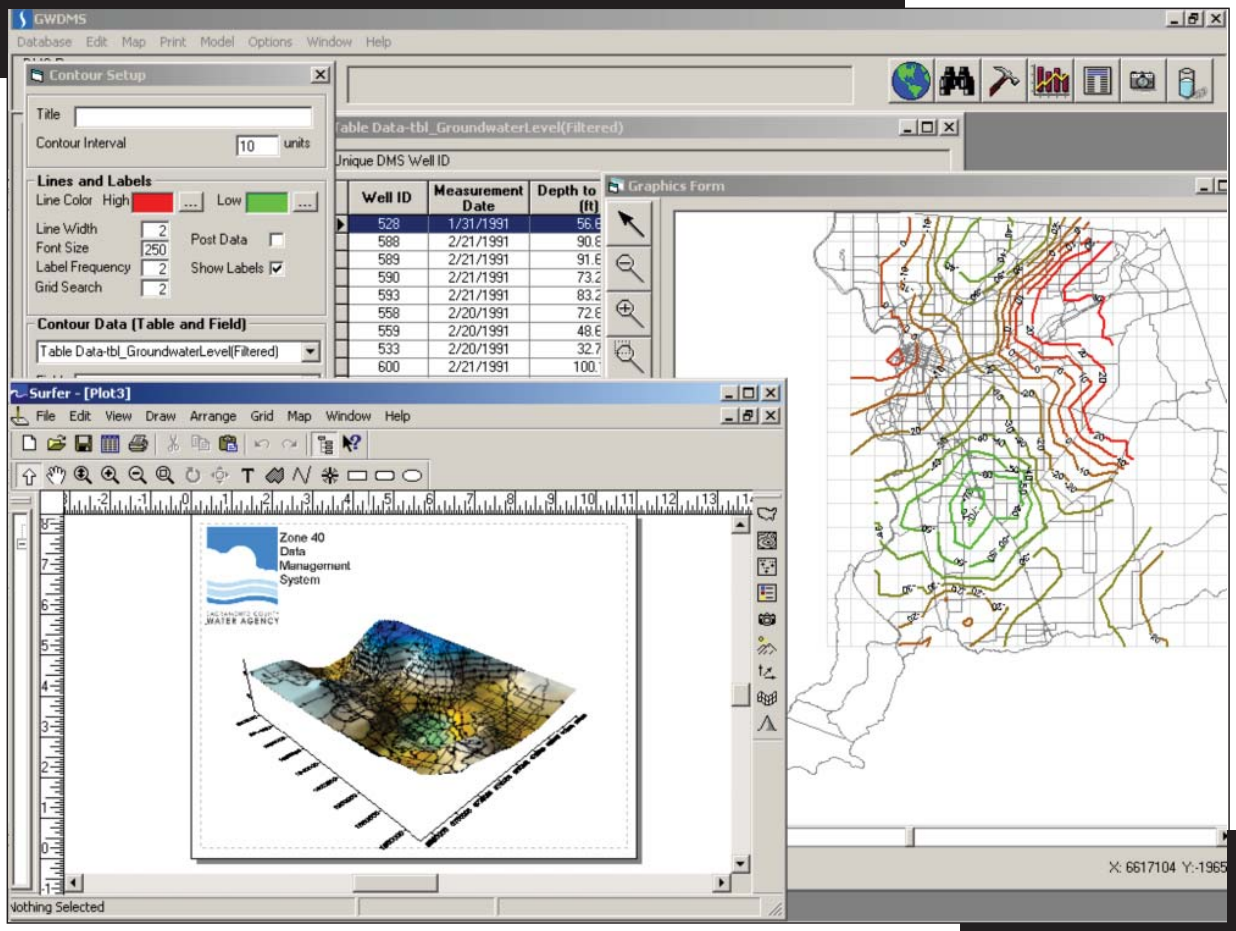
*Ensure that all public and private agencies in Zone 40 are provided a copy of the code and understand the proper destruction procedures and support implementation of these procedures.*

*Follow up with cooperating agencies and EMD on the reported abandoned and destroyed wells to confirm the information collected from DWR.*

*Provide a copy of the information on abandoned and destroyed wells in the Central Basin to fill any gaps in their records.*

*Meet with EMD to discuss ways to ensure that wells in the Zone 40 area are properly abandoned or destroyed.*

**Figure 3-5b. DMS Screen Capture**



*Obtain "wildcat map from California Division of Oil and Gas to ascertain the extent of historic gas well drilling operations in the area as these wells could function as conduits of contamination if not properly destroyed.*

## 3.6.3 Wellhead Protection Measures

Identification of wellhead protection areas is a component of the Drinking Water Source Assessment and Protection (DWSAP) Program administered by DHS. DHS set a goal for all water systems statewide to complete Drinking Water Source Assessments by mid-2003. Zone 40 has completed their required assessments by performing the three major components required by DHS:

- Delineation of capture zones around sources (wells).
- Inventory of Potential Contaminating Activities (PCAs) within protection areas.
- Vulnerability analysis to identify the PCAs to which the source is most vulnerable.

Delineation of capture zones includes using groundwater gradient and hydraulic conductivity data to calculate the surface area overlying the portion of the aquifer that contributes water to a well within specified time-of-travel periods. Typically, areas are delineated representing 2-, 5-, and 10-year time-of-travel periods. These protection areas need to be managed to protect the drinking water supply from viral, microbial, and direct chemical contamination.

Inventories of PCAs include identifying potential origins of contamination to the drinking water source and protection areas. PCAs may consist of commercial, industrial, agricultural, and residential sites, or infrastructure sources such as utilities and roads. Depending on the type of source, each PCA is assigned a risk ranking, ranging from "very high" for such sources as gas stations, dry cleaners, and landfills, to "low" for such sources as schools, lakes, and non-irrigated cropland.

Vulnerability analysis includes determining the most significant threats to the quality of the water supply by evaluating PCAs in terms of risk rankings, proximity to wells, and Physical Barrier Effectiveness (PBE). PBE takes into account factors that could limit infiltration of contaminants including type of aquifer, aquifer material (for unconfined aquifers), pathways of contamination, static water conditions, hydraulic head (for confined aquifers), well operation, and well construction. The vulnerability analysis scoring system assigns point values for PCA risk rankings, PCA locations within wellhead protection areas, and well area PBE; the PCAs to which drinking water wells are most vulnerable are apparent once vulnerability scoring is complete.

SCWA has already added PCA and capture zone information from the DWSAP into the DMS. The DMS includes a feature that will automatically calculate wellhead protection areas if no data are available or if new well locations are proposed.

***Actions.*** SCWA will take the following actions:

*Request that public water purveyor agencies within the Central Basin provide vulnerability summaries from the DWSAP to Zone 40 to be used for guiding management decisions in the basin.*

*Contact groundwater basin managers in other areas of the state for technical advice, effective management practices, and "lessons learned," regarding establishing wellhead protection areas.*

## 3.6.4 Protection of Recharge Areas

SCWA has evaluated surface geology within and directly adjacent to Zone 40's boundary for the purpose of delineating areas of potentially high recharge rates. Much of the surface area considered to have the highest potential for recharge along the American River is developed. Abandoned aggregate mining pits north and south of Jackson Highway have been considered in previous studies to be a possible recharge location. These pits typically extend 20 to 30 feet below ground surface and are mined to the clay layer that separates the Laguna formation from the Mehrten formation. Water introduced to these pits could deep percolate vertically through the interbedded clay lens and horizontally through the pit walls into the Laguna formation. Flood waters and perhaps treated recycled water can be discharged into these pits for year round recharge. The RWQCB will need to provide regulatory approval prior to any use of these pits for recharge.

Other known recharge locations are along the Cosumnes River. The Cosumnes River overlies very transmissive soils evidenced by the lack of river flow during certain times of year. Enhancing this recharge is already being considered

through a pilot program (coordinated through the Water Forum, SCWA, TNC and SSCAWA) that would convey American River water through the Folsom South Canal and then discharge it to the Cosumnes River at the canal crossing. It is hoped that this program will demonstrate an improvement in the fishery and riparian habitat along the Cosumnes River.

***Actions.*** SCWA will take the following action:

*SCWA will continue to work with mining companies, TNC and SSCAWA to explore the possibilities for enhancing recharge into the Zone 40 groundwater basin.*

### 3.6.5 Control of the Migration and Remediation of Contaminated Groundwater

Contaminated groundwater within Zone 40 is primarily from Mather Field, Aerojet, and Boeing. The groundwater contamination plumes from these sources are shown in **Figure 2-3**. Also of concern is localized contamination by industrial/commercial point sources such as dry cleaning facilities and numerous fuel stations throughout the basin.

While SCWA does not have authority or the responsibility for remediation of this contamination, it is committed to coordinating with responsible parties and regulatory agencies to stay informed on the status and disposition of known contamination in the basin. For example, SCWA has requested and entered into its DMS known LUSTs within the basin. This information is maintained by the SWRCB and RWQCB. Also, SCWA has been in communication with AFRPA, which is overseeing remediation efforts at Mather AFB (see **Section 3.4.2**).

***Actions.*** SCWA will take the following actions:

*Coordinate with known responsible parties to develop a network of monitoring wells to act as sentry wells for public supply wells.*

*If detections occur in these monitoring wells, meet with the responsible parties to develop strategies to minimize the further spread of contaminants. An example of a strategy would be to consider altering groundwater extraction patterns in the area to change the groundwater gradient.*

*Use the information on mapped contaminant plumes and LUST sites in developing groundwater extraction patterns and in the siting of future production or monitoring wells.*

*Meet with representatives of the RWQCB to establish a mutual understanding about SCWA's groundwater management responsibilities. Identify ways to have open and expedited communication with RWQCB regarding any new occurrences of LUSTs, particularly when contamination is believed to have reached the groundwater.*

### 3.6.6 Control of Saline Water Intrusion

Saline water intrusion from the Sacramento/San Joaquin River Delta (Delta) is not currently a problem in the Central Basin, and is not expected to become a problem in the future. Higher groundwater elevations associated with recharge from the American and Sacramento rivers have maintained a historical positive gradient preventing significant migration of any saline water from the Delta into the Sacramento County region. These groundwater gradients will continue to serve to prevent any localized pumping depressions in the basin from inducing flow from the Delta into the Central Basin.

***Actions.*** SCWA will take the following actions:

*Track the progression, if any, of saline water bodies moving toward the east from the Delta. Because this is a highly unlikely scenario, this action will be limited to communicating with DWR's Central District Office on a biennial basis to check for significant changes in TDS concentrations in wells. DWR has a regular program of sampling water quality in select production wells throughout the adjacent Solano, San Joaquin, and Yolo counties. This will serve as an early warning system for the potential of saline water intrusion from the Delta.*

*Observe TDS concentrations in Zone 40's municipal wells that are routinely sampled under Title 22. This data will be readily available as part of the DMS and are already an on-going task for the annual review of basin conditions.*

*Inform all stakeholders of the presence of the salinity interface and the approximate depth to the interface for their reference when siting potential wells. SCWA will also ensure that EMD, which issues well permits, is aware of the interface. SCWA will provide a map indicating the contour of the elevation of the base of fresh water in Sacramento County to EMD for their reference when issuing well permits.*

## 3.7 COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY

To ensure a long-term viable supply of groundwater, SCWA is seeking to maintain or increase the amount of groundwater stored in the basin over the long-term. The WFA's groundwater management element provides a framework by which the groundwater resource in the Sacramento County-wide basin can be protected and used in a sustainable manner. It recommends an average annual sustainable groundwater yield within the Central Basin of 273,000 AF/year. As discussed in **Section 2**, historic groundwater extractions have resulted in a net depletion of groundwater stored under the Zone 40 area. To ensure a sustainable resource, SCWA continues to move forward with its conjunctive use program in Zone 40 including pursuit of additional surface water supplies, increased use of recycled water, and implementation of the WFA water conservation element. Current conjunctive use activities include improvements to the City of Sacramento/SCWA Franklin Boulevard connection and continued development of the Freeport Regional Water Project that will bring additional surface water supplies into Zone 40.

Two primary activities will result in an improved ability to sustain the viability of the groundwater resource for the region. Conjunctive management is an activity that includes the planning and construction of facilities to increase the available water supply to the area as well as to create opportunities for the banking and exchange of water with local in-basin partners after local needs are met. These partnerships will result in increased surface water and perhaps revenue to pay for some of the necessary capital improvements to help sustain the resource in a cost-effective way (Conjunctive Management Activities).

SCWA is committed to expanded direct recharge activities and proposes to investigate a variety of ways of recharging water into the available storage space in the basin. Opportunities for direct recharge from overlying land in the basin exist through recharge basins (e.g., abandoned aggregate mining pits) or through aquifer storage and recovery (ASR). The City of Roseville is currently implementing ASR programs where treated surface water is being injected into the groundwater and recovered through wells in the summer months and dry years. Most of the potential recharge opportunities could occur by providing raw or treated surface water to municipal and agricultural users in-lieu of their extracting groundwater. During the early phases of Zone 40's conjunctinve use program, there is expected to be excess capacity in both the raw water pipeline from the Freeport diversion and the Central WTP that could be delivered through some means of conveyance to groundwater users.

***Actions.*** SCWA will take the following actions:

*Continue to investigate conjunctive use opportunities within the Zone 40 area. Zone 40 and other groundwater users within the Central groundwater basin will coordinate any recharge efforts.*

*Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. injection wells or surface spreading facilities, through constructed recharge basins or in river or streambeds).*

### 3.7.1 Demand Reduction

Another way to maintain the sustainable yield of the basin and continue to achieve in-lieu recharge is by reducing demand for potable water supplies by conservation and through the use of recycled water for landscape irrigation.

***Water Conservation.*** While SCWA is not currently a member of the RWA, SCWA participates in RWA's efforts in developing and implementing a regional Water Efficiency Program (WEP). The WEP assists participants in meeting their water conservation agreements with the Water Forum, the California Urban Water Conservation Council, and if necessary, the Central Valley Project Improvement Act (CVPIA). The goal of the WFA is to achieve system-wide conservation of slightly more than 25 percent by the year 2030.

***Water Recycling.*** SRCSD treats wastewater for the Sacramento region at its Elk Grove Wastewater Treatment Plant and is looking for ways to increase demand for tirtiary treated or recycled water. Currently, SRCSD is treating approximately 5 MGD of recycled water at its Elk Grove facility and delivering it to nearby landscape irrigation users within Zone 40. SRCSD expects the capacity of that facility to increase to 10 MGD over the next few years to serve the East Franklin and Laguna Ridge development areas within Zone 40.

***Actions.*** SCWA will take the following actions:

*Continue to participate in RWA's WEP to ensure that SCWA's conservation efforts are on track. For those who*

*receive wholesale water supplies from Zone 40, SCWA will ensure that they are informed of the benefits and regional importance of participating in the WEP.*

*Coordinate with SRCSD to investigate further opportunities for expanded use of recycled water throughout Zone 40 and the Central Basin.*

## 3.8 COMPONENT CATEGORY 5: PLANNING INTEGRATION

With the large number of autonomous water purveyors serving the greater Sacramento area, the need to integrate water management planning on a regional scale is a high priority. Individual purveyors derive their supplies from the American River, the Sacramento River, the groundwater basin, or some mix of these sources. Individual purveyor infrastructure systems are mostly independent; where interconnections do exist between purveyors, they are typically for emergency purposes only.

The WFA provides a regional conjunctive use framework with commitments from individual purveyors concerning groundwater and surface water operations, including limitations on surface water diversions from the lower American River during dry years. SCWA and others planning efforts seek to better integrate the individual plans of various entities to implement various elements of the WFA in keeping with the 2030 regional framework. Such integration also promotes operational efficiency, cost savings, and in some cases generates larger statewide-system benefits. SCWA recognizes that some non-signatures to the WFA have an interest in water supply planning coordination.

### 3.8.1 Existing Integrated Planning Efforts

Zone 40 has already demonstrated implementation of integrated management in the region through its cooperation with the City of Sacramento in treating and wheeling surface water, through participation in the WEP, and through the SRCSD recycled water program. Some of the integrated planning efforts to date are listed below.

**Water Efficiency Program.**
**Described in Section 3.7.1**

**City of Sacramento Wheeling Agreement.**
**Described in Section 2.5**

**SCWA/SRCSD Recycled Water Program.**
**Described in Section 3.7.1**

***Urban Water Management Planning.*** Zone 40 and its retail water purveyors are required to prepare Urban Water Management Plans. These plans, as defined by CWC § 10610 et seq., require public water suppliers with more than 3,000 customers or that deliver more than 3,000 AF of water annually to identify conservation and efficient water use practices to help ensure a long-term, reliable water supply. To date, all retail purveyors have submitted plans to DWR.

***DWSAP Program.*** The DWSAP Program is administered by DHS. As a first step to a complete source protection program, DHS required water systems to conduct a preliminary assessment. The assessment includes the "delineation of the area around a drinking water source through which contaminants might move and reach that drinking water supply; an inventory of PCAs that might lead to the release of microbiological or chemical contaminants within the delineated area; and a determination of the PCAs to which the drinking water source is most vulnerable (http://www.dhs.ca.gov/ps/ddwem/dwsap/overview.htm)."

The assessments only apply to agencies that deliver groundwater for public drinking water supply. Data from the assessments have or will be incorporated into Zone 40's DMS.

***Land Use Planning.*** Effective January 1, 2002, state law required (SB610 and SB221) that a water supplier take certain actions to confirm sufficency of water supply as a condition to approval of some new development projects. These actions involve the development of Water Supply Assessments and Writtern Verifications at the request of the land use authority. These documents provide an assurance that adequate water supplies are available before a project moves forward.

***Integrated Surface Water and Groundwater Modeling.*** SCWA is interested in using and building upon existing groundwater models for the Sacramento area. In the late 1990s, a range of groundwater extraction and recharge scenarios were simulated using the North American River and Sacramento County Combined

Integrated Groundwater and Surface Water Model (IGSM[13]). This model was originally developed for the American River Water Resources Investigation (ARWRI) conducted by Reclamation and was later used for the Draft Water Forum Solution Model developed for the Water Forum. The purpose of the Water Forum's use of the model was development of a conjunctive use strategy for the groundwater basin underlying Sacramento County and southern Placer County. SGA recently updated the calibration model to run with the latest version of IGSM. Historical water budgets from 1969 to 1995 were developed and a comparison of model results with actual measured values for groundwater elevations and streamflows over the calibration period were provided. SCWA and SGA are pursuing having the calibration period extended from 1995 to 2000, and to extend the planning model hydrologic period that used for measuring effects of conjunctive use practices. Currently the hydrologic period extends from 1922 to 1995.

SCWA's interest in maintaining and updating the IGSM is because it forms the basis for the WFA, and the Zone 40 Master Plan Environmental analyses. SCWA is also interested in being custodian of the IGSM model because it is the model used for regional planning by Reclamation and DWR for projects such as the ARWRI, the CVPIA, and the CALFED process.

***Actions.*** SCWA will take the following actions:

*Prepare and adopt a formal integrated water management plan in accordance with CWC § 10540 et seq. The plan will include, but not be limited to, the elements listed above. Zone 40 will seek to form an ad hoc committee with the RWA, the SSCAGA, and the Nature Conservancy to determine which agency would be most appropriate to prepare that plan and to update and make use of the IGSM model.*

*Review the Water Forum Land Use procedures and make recommendations on what additional role, if any, the Zone 40 should take with respect to land use decisions within the Zone 40 area.*

[13]The IGSM is a finite element, quasi three-dimensional, multi-layered model that integrates surface water and groundwater on a monthly time step. The IGSM was developed for use as a regional planning tool for large areas influenced by both surface water and groundwater. The tool is well-equipped to accommodate input and output of land use and water use data over large areas. Data input includes hydrogeologic parameters, land use, water demand, precipitation and other hydrologic parameters, boundary inflows, and historical water supply. For purposes of parameter definition and developing water budgets around physical and/or political boundaries, the IGSM divides Sacramento, Placer, Sutter, and San Joaquin counties into subregions. Each subregion is further divided into unique numbered elements varying from 200 to 800 acres in size. Overlying this grid is a coarse parametric grid utilized for specifying aquifer and other parameters.

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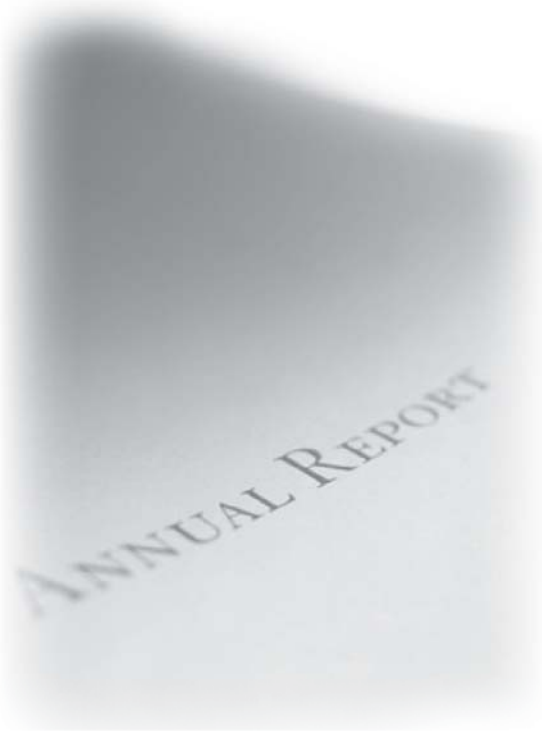
SECTION 4

# PLAN IMPLEMENTATION

SECTION 4

*__Table 4-1__ summarizes the action items presented in __Section 3__ and an implementation schedule. Many of these actions involve coordination by the SCWA with other local, state and federal agencies within 6 months of the adoption of this GMP. A few activities involve assessing trends in basin monitoring data for the purpose of determining the adequacy of the monitoring network. These assessments will be made as new monitoring data become available for review by SCWA and results will be documented in an annual State of the Basin report (see below).*

# PLAN IMPLEMENTATION




## 4.1 ANNUAL GMP IMPLEMENTATION REPORT

SCWA will report on the progress made implementing the GMP in an annual State of the Basin report, which will summarize groundwater conditions in the Zone 40 area and document groundwater management activities from the previous year. Much of the data used in the annual State of the Basin report will come from the monitoring and successful implementation of the action items stated above and from data collected and entered into the DMS. **Appendix C** provides examples of the kinds of output that will be taken from the DMS and interpreted by a hydrogeologist in an annual report. **Figure 3-5** is an example of the cross-section utility of the DMS that can be used to indicate the heterogeneity of the basin and where water bearing deposits may lie in comparison with actual measured groundwater elevation and well screen data. This report will include:

- Summary of monitoring results, including a discussion of historical trends.
- Summary of management actions during the period covered by the report.
- Improved characterization of the groundwater basin through interpretation of the DMS cross section.
- Summary and interpretation of water quality and groundwater elevation data.
- A discussion, supported by monitoring results, of whether management actions are achieving progress in meeting BMOs.
- Summary of any plan component changes, including the addition or modification of BMOs during the period covered by the report.
- The State of the Basin report will be completed by April 1st each year and will report on conditions and activities completed through December 31st of the prior year.

**Table 4-1. Summary of GMP Actions**

| Description of Action | Implementation Schedule (approximate time for commencing activity following adoption of GMP) |
|---|---|
| **I. COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT** | |
| **INVOLVING THE PUBLIC** | |
| 1. Continue efforts to encourage public participation as opportunities arise. | on-going |
| 2. Review and take actions from the Public Outreach Plan as necessary during implementation of various aspects of the GMP. | on-going |
| 3. Provide briefings to the CSCGF on GMP implementation progress. | on-going |
| 4. Work with basin stakeholders to maximize outreach on GMP activities including the use of the SCWA website. | 12 months |
| **INVOLVING OTHER AGENCIES WITHIN AND ADJACENT TO THE ZONE 40 AREA** | |
| 1. Continue high level of involvement with SGA, TNC, SSCAWA and others in implementing the GMP. | on-going |
| 2. Provide copies of the adopted GMP and subsequent annual reports to representatives from CSCGF, SGA, TNC, SSCAWA and other interested parties. | 6 months |
| 3. Meet with representatives from CSCGF, SGA, TNC, SSCAWA and others, as needed. | 6 months |
| **UTILIZING ADVISORY COMMITTEES** | |
| 1. Upon adoption of the GMP, the acting Technical Review Committee will meet to discuss the continuation and composition of committees to guide implementation of the plan. | 6 months |
| **DEVELOPING RELATIONSHIPS WITH STATE AND FEDERAL AGENCIES** | |
| 1. Continue to develop working relationships with local, state, and federal regulatory agencies. | on-going |
| **PURSUING PARTNERSHIP OPPORTUNITIES** | |
| 1. Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits. | on-going |
| 2. Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects. | on-going |
| **II. COMPONENT CATEGORY 2: MONITORING PROGRAM** | |
| **GROUNDWATER ELEVATION MONITORING** | |
| 1. Coordinate with SGA, SSCAWA, TNC and others to identify an appropriate group of wells for monitoring for a spring 2005 set of groundwater elevation measurements. | 6 months |
| 2. Coordinate with DWR to ensure that the selected wells are maintained as part of a long-term monitoring network. | 6 months |
| 3. Coordinate with agencies involved in data collection to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies. | 6 months |
| 4. Coordinate with the USGS to determine the potential for integrating USGS monitoring wells constructed for the National Water Quality Assessment (NAWQA) Program into the Zone 40 monitoring network. | 6 months |
| 5. Consider ways to fill gaps in the monitoring well network by identifying additional suitable existing wells or identifying opportunities for constructing new monitoring wells. | 6 months |
| 6. Assess groundwater elevation trends and conditions based on the network annually. | Results and recommendations included in State of Basin report published in July of each year |
| 7. Assess the adequacy of the groundwater elevation monitoring well network annually. | Results and recommendations included in State of Basin report published in July of each year |
| 8. Identify a subset of monitoring wells that will be monitored more frequently than twice annually to improve SCWA's understanding of aquifer responses to pumping throughout the year. | 12 months |
| **GROUNDWATER MANAGEMENT SYSTEM** | |
| 1. Provide SCWA staff with training and use of the Zone 40 DMS. | 6 months |
| 2. Populate and update the DMS with available groundwater, water quality, well, and surface water data. | 6 months |
| 3. Develop list of recommended enhancements to the DMS. | 6 months |
| 4. Provide resources for maintaining and updating the DMS and the Sacramento County IGSM. | 6 months |
| 5. Develop State of the Basin Report. | 6 months |

**Table 4-1. Summary of GMP Actions continued**

| | |
|---|---|
| **III. COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION** | |
| **WELL CONSTRUCTION POLICIES** | |
| 1. Coordinate with the Sacramento County Environmental Management Department on the administration of the well construction and abandonment program. | on-going |
| 2. Educate the Sacramento County Environmental Management Department on the Zone 40 GMP and SCWA's role in groundwater protection. | 6 months |
| **WELLHEAD PROTECTION** | |
| 1. Update list of PCA's and delineation of capture zone areas. | 12 months |
| 2. Coordinate with Sacramento County, City of Elk Grove, and City of Rancho Cordova Planning Staff on location of Zone 40 wells and their capture zones. | 12 months |
| **IV. COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY** | |
| **DEMAND REDUCTION** | |
| 1. Coordinate with SRCSD to investigate further opportunities for expanded use of recycled water. | on-going |
| **V. COMPONENT CATEGORY 5: PLANNING INTEGRATION** | |
| **INTEGRATED WATER MANAGEMENT PLAN** | |
| 2. Prepare and adopt a formal integrated water management plan in accordance with CWC 10540. | on-going |
| 2. SCWA will seek to form an ad hoc committee with the RWA, SGA, SSCAGA, and TNC to determine which agency(s) would be most appropriate to prepare an integrated water management plan and to update and make use of the IGSM model. | 12 months |

## 4.2 FUTURE REVIEW OF GMP

This GMP is intended to be a framework for the first regionally coordinated management efforts in the Zone 40 area. As such, many of the identified actions will likely evolve as Zone 40 actively manages and learns more about the basin and as the CSCGF negotiations determine a groundwater management entity for the entire Central groundwater basin. Many additional actions will also be identified in the annual summary report described above. The GMP is therefore intended to be a living document, and it will be important to evaluate all of the actions and objectives over time to determine how well they are meeting the overall goal of the plan. SCWA plans to evaluate this entire plan within five years of adoption.

## 4.3 FINANCING

It is envisioned that implementation of the GMP, as well as many other groundwater management-related activities will be funded from a variety of sources including the Zone 40 fee program; in-kind services by other agencies; state or federal grant programs; and local, state, and federal partnerships. Some of the items that would likely require additional resources include:

- Monitoring for groundwater quality or elevations in non-purveyor wells.
- Customization of the DMS interface.
- Preparation of GMP annual reports.
- Updates of the overall GMP.
- Update of data sets and recalibration/improvement of existing groundwater model.
- Collection of additional subsidence data.
- Construction of monitoring wells where critical data gaps exist.
- Stream-aquifer interaction studies.
- Implementation of the GMP including:
- Committee coordination.
- Project management.
- Implementation of regional conjunctive use program.
- During year one of plan implementation, an estimate of some of the likely costs associated with the above activities will be prepared.

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SECTION 5

# REFERENCES

SECTION 5

# REFERENCES

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SECTION 6

# APPENDICES

# Appendix A

## Outreach and Education

### Attachment A. Zone 40's Notices Published in the Sacramento Bee

### Attachment B. "Summary of Public Outreach Plan for Groundwater Management" (Included as Separate Attachment)

NO427 PUBLIC NOTICE

# NOTICE OF INTENT TO ADOPT A RESOLUTION TO PREPARE A GROUNDWATER MANAGEMENT PLAN

The Sacramento County Board of Supervisors intends to consider the adoption of a resolution to prepare a groundwater management plan at its August 17, 2004 Board meeting. The meeting, which the public is invited to attend, will begin at 9:30 am at the Sacramento County Board of Supervisors Chambers, County Administration Center, 700 H Street, Sacramento, California.

The Sacramento County Water Agency supplies water to unincorporated areas of Sacramento County south of the American River and north of the Cosumnes River. Any individual interested in the development of the groundwater management plan is encouraged to attend the meeting. For more information, please contact Bob Gardner at the Sacramento County Department of Water Resources at (916) 874-8433.

2Ti August 3 & 10, 2004

NO 529 PUBLIC NOTICE

# RESOLUTION NO. WA-2561

## RESOLUTION OF INTENT TO PREPARE A GROUNDWATER MANAGEMENT PLAN FOR ZONE 40 AND ADOPT A STATEMENT OF PUBLIC PARTICIPATION

**WHEREAS**, the Sacramento County Water Agency (hereinafter referred to as "Agency") was formed in 1952 by a special legislative act of the State of California (the Sacramento County Water Agency Act [hereinafter referred to as "Agency Act"]); and
**WHEREAS**, under the Agency Act the Agency is to provide for the protection, preservation, and enhancement, for current and future beneficial uses, the groundwater resources in Sacramento County; and
**WHEREAS**, the Agency, under a Joint Powers Authority, has participated in the Sacramento Groundwater Authority (hereinafter referred to as "SGA") for purposes of protecting groundwater resources in the North Sacramento County Groundwater Basin, north of the American River; and
**WHEREAS**, the Agency recognizes the adopted Groundwater Management Plan for the North Sacramento County Groundwater Basin completed by SGA; and
**WHEREAS**, under the Agency Act the Agency is empowered to develop, adopt and implement a plan for the management of groundwater resources.
**NOW, THEREFORE**, the Board of Directors of the Sacramento County Water Agency resolves and determines as follows:

Section 1. The foregoing recitals are true and correct and this Board so finds and determines.

Section 2. The Agency intends to develop, adopt, and implement a groundwater management plan for Zone 40. Among other components, the Zone 40 groundwater management plan shall include the following components:
a. Basin Management Objectives;
b. Components relating to the monitoring and management of groundwater levels, groundwater banking, groundwater quality, inelastic land surface subsidence, and changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping;
c. Monitoring protocols to track changes in conditions related to the components in paragraph (b) and to generate information for the purpose of meeting Basin Management Objectives and establishing effective management of groundwater;
d. A plan to involve SGA, other local agencies, water purveyors, and private well owners in the Central Sacramento County Groundwater Basin in the development of the groundwater management plan;
e. A map depicting the Central Sacramento County Groundwater Basin, as defined by California Department of Water Resources Bulletin No. 118 and the Central Sacramento County Groundwater Forum, the jurisdictional area of Zone 40, and the boundaries of SGA, other local agencies, and water purveyors in the Central Sacramento County Groundwater Basin; and,
f. Rules related to implementation of the groundwater management plan.

Section 3. The Agency will provide for public involvement in the development of the groundwater management plan. The Agency's plan for public involvement shall include the following:
a. The formation of a Technical Review Committee and Policy Committee to guide development of the groundwater management plan;
b. Coordination and participation from the Central Sacramento County Groundwater Forum;
c. Preparation of a Public Outreach Plan; and,
Public review and comment period and public hearings.

2Ti August 20 & 26, 2004

NO603 PUBLIC NOTICE

# A PUBLIC HEARING

to consider the

## Adoption of the Zone 40 Groundwater Management Plan (GMP)

will be held on September 28, 2004 at 10:45 a.m. at the Sacramento County Board of Supervisors Chambers, County Administration Center, 700 H Street, Sacramento, California.

A copy of the proposed Groundwater Managed Plan can be accessed online at www.saccounty.net search for "Zone 40 GMP."

**For more information, contact the Department of Water Resources at 874-6851.**

2Ti September 14 & 21, 2004

**NO249 PUBLIC NOTICE**

The Sacramento County Water Agency Board of Directors will adopt a groundwater management plan for Zone 40 at their November 2, 2004 board meeting. The meeting, which the public is invited to attend, will be held on November 2, 2004 at 9:30a.m. at the Sacramento County Board of Supervisors Chambers, County Administration Center, 700 H Street, Sacramento, California.

The Sacramento county Water Agency supplies water to unincorporated areas of Sacramento County south of the American River and north of the Cosumnes River. Any individual interested in the development of the groundwater management plan is encouraged to attend the meeting. For more information, please contact Bob Gardner at the Sacramento County Department of Water Resources at (916) 874-8433.

2Ti October 19 & 26, 2004

# Appendix B

## Standard Operating Procedure for Manual Water Level Measurements

# TABLE OF CONTENTS

TABLE OF CONTENTS ..... i

SECTION 1.0 SCOPE AND APPLICATION ..... 1

SECTION 2.0 METHOD SUMMARY ..... 1

SECTION 3.0 POTENTIAL PROBLEMS ..... 2

SECTION 4.0 EQUIPMENT ..... 2

SECTION 5.0 PROCEDURES ..... 2
5.1 Preparation ..... 2
5.2 Procedures ..... 3

SECTION 6.0 CALCULATIONS ..... 3

SECTION 7.0 QUALITY ASSURANCE/QUALITY CONTROL ..... 4

SECTION 8.0 HEALTH AND SAFETY ..... 5

SECTION 9.0 REFERENCES ..... 5

# 1.0 SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to set guidelines for the determination of the depth to water and separate phase chemical product (i.e., gasoline or oil) in a water supply well, monitoring well, or piezometer. These standard operating procedures may be varied or changed as required, dependent on site conditions, and equipment limitations. In all instances, the actual procedures employed will be documented and described on the field form. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

Generally, water-level measurements taken in piezometers, or wells are used to construct water table or potentiometric surface maps and to determine flow direction as well as other aquifer characteristics. Therefore, all water level measurements in a given district should preferably be collected within a 24-hour period and Zone 40's area within one week. However, certain situations may produce rapidly changing groundwater levels that necessitate taking measurements as close in time as possible. Large changes in water levels among wells may be indicative of such a condition. Rapid groundwater level changes may occur due to:

- Atmospheric pressure changes
- Changes in river stage, impoundments levels, or flow in unlined ditches
- Pumping of nearby wells
- Precipitation
- Tidal influences

# 2.0 METHOD SUMMARY

A survey mark should be placed on the top of the riser pipe or casing as a reference point for groundwater level measurements. If the lip of the riser pipe is not flat, the reference point may be located on the grout apron or the top of the outer protective casing (if present). The measurement reference point should be documented on the groundwater level data form. All field personnel must be made aware of the measurement reference point being used in order to ensure the collection of comparable data. Before measurements are made, water levels in piezometers and monitor wells should be allowed to stabilize for a minimum of 24 hours after well construction and development. Measurements in water supply wells need to be noted as questionable if pumping has or is occurring. In low yield situations, recovery of water levels to equilibrium may take longer. All measurements should be made as accurately as possible, with a minimum accuracy of 0.1 feet. Future measurements may have to be more accurate (measurements to the nearest 0.01 foot may be needed for conjunctive use projects, etc.). Ideally, the minimum measurement accuracy is 0.1 feet and the recommended accuracy is 0.01 feet.

If there is reason to suspect groundwater contamination, water level measuring equipment must be decontaminated and, in general, measurements should proceed from the least to the most contaminated wells. This SOP assumes an absence of contamination and no need for air monitoring or decontamination.

Open the well and monitor the headspace with the appropriate air-monitoring instrument if the presence of volatile organic compounds is suspected. For electrical sounders lower the device into the well until the water surface is reached as indicated by a tone or meter deflection. Record the distance from the water surface to the reference point. Measurement with a chalked tape will

necessitate lowering the tape below the water level and holding a convenient foot marker at the reference point. Record both the water level as indicated on the chalked tape section and the depth mark held at the reference point The depth to water is the difference between the two readings. Remove measuring device, replace riser pipe cap, and decontaminate equipment as necessary. Note that if a separate phase is present, an oil/water indicator probe is required for measurement of product thickness and water level.

# 3.0 POTENTIAL PROBLEMS

1. Cascading water, particularly in open-hole or rock wells, may interfere with the measurement.
2. Some older types of electric sounders are only marked at five-foot intervals. A surveyor's tape is necessary to extrapolate between the 5-foot marks.
3. Oil or other product floating on the water column can insulate the contacts of the probe on an electric sounder and give false readings. For accurate level measurements in wells containing floating product, a special oil/water level indicator is required, and the corrected water level must be calculated.
4. Tapes (electrical or surveyor's) may have damaged or missing sections, or may be spliced inaccurately.
5. An airline may be the only available means to make measurements in sealed production wells but the method is generally accurate only to approximately 0.2 foot.
6. When using a steel tape, it is necessary to lower the tape below the water level in order to make a measurement. This assumes knowledge of the approximate groundwater level.

# 4.0 EQUIPMENT

The electric water level indicator and the chalked steel tape are the devices commonly used to measure water levels. Both have an accuracy of 0.01 feet. Other field equipment may include:

- Air monitoring instrumentation
- Well depth measurement device (sounder)
- Chalk
- Ruler
- Site logbook
- Paper towels and trash bags
- Decontamination supplies (assumed unnecessary)
- Groundwater level data forms

# 5.0 PROCEDURES

## 5.1 Preparation

1. Determine the number of measurements needed, the methods to be employed, and the equipment and supplies needed.
2. Decontaminate or pre-clean equipment, and ensure that it is in working order.
3. Coordinate schedule with staff and regulatory agency, if appropriate.

4. If this is an initial visit, perform a general site survey prior to site entry in accordance with a current approved site specific Health and Safety Plan (id applicable).
5. Identify measurement locations.

### 5.2 Procedures

Procedures for determining water levels are as follows:

1. If possible, and when applicable, start at those wells that are least contaminated and proceed to those wells that are most contaminated.
2. Rinse all the equipment entering the well.
3. Remove locking well cap, note well ID, time of day, and date on the groundwater level data form.
4. Remove well cap.
5. If required by site-specific condition, monitor headspace of well with a photoionization detector (PID) or flame ionization detector (FID) to determine presence of volatile organic compounds, and record results in logbook.
6. Lower water-level measuring device into the well. Electrical tapes are lowered to the water surface whereas chalked steel tapes are lowered generally a foot or more below the water surface. Steel tapes are generally chalked so that a 1-to 5-foot long section will fall below the expected water level.
7. For electrical tapes record the distance from the water surface, as determined by the audio signal or meter, to the reference measuring point and record. For chalked tapes, an even foot mark is held at the reference point, once the chalked section of the tape is below the water level. Both the water level on the tape and the foot mark held at the reference point is recorded. The depth to the water is then the difference between the two readings. In addition, note the reference point used (top of the outer casing, top of the riser pipe, ground surface, or some other reproducible position on the well head). Repeat the measurement.
8. Remove all downhole equipment, replace well cap and locking steel caps.
9. Rinse all downhole equipment and store for transport to the next well.
10. Note any physical changes, such as erosion or cracks in protective concrete pad or
11. Note any physical changes, such as erosion or cracks in protective concrete pad or variation in total depth of well on groundwater level data form.

## 6.0 CALCULATIONS

To determine groundwater elevation above mean sea level, use the following equation:

$$\mathbf{E_w = E - D}$$

where:

$E_W$ = Elevation of water above mean sea level (feet) or local datum

$E$ = Elevation above sea level or local datum at point of measurement (feet)

$D$ = Depth to water (feet)

# 7.0 QUALITY ASSURANCE/QUALITY CONTROL

The following general quality assurance/quality control (QA/QC) procedures apply:

1. All data must be documented on the groundwater level data forms.
2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified.
3. Each well should be tested at least twice in order to compare results. If results do not agree to within 0.02 feet, a third measurement should be taken and the readings averaged. Consistent failure of consecutive readings to agree suggests that levels are changing because of one or more conditions as indicated in Section 1, and should be noted on the field form.
4. Results should be compared to historical measurements while in the field and significant discrepancies noted and resolved if possible.
5. Wells for which no or questionable measurements are obtained need to have the codes entered on the field form as follows:

| **No Measurement** | | **Questionable Measurement** | |
|---|---|---|---|
| **0** | Discontinued | **0** | Caved or deepened |
| **1** | Pumping | **1** | Pumping |
| **2** | Pumphouse locked | **2** | Nearby pump operating |
| **3** | Tape hung up | **3** | Casing leaking or wet |
| **4** | Can't get tape in casing | **4** | Pumped recently |
| **5** | Unable to locate well | **5** | Air or pressure gauge measurement |
| **6** | Well destroyed | **6** | Other |
| **7** | Special | **7** | Recharge operation at nearby well |
| **8** | Casing leaking or wet | **8** | Oil in casing |
| **9** | Temporarily inaccessible | | |
| **D.** | Dry well | | |
| **F.** | Flowing well | | |

6. The surveyor(s) must complete all fields on the field form and initial. Upon return from the field, appropriate corrective actions need to be communicated and completed prior to the next survey event.
7. All data entered into electronic spreadsheet or database should be double-keyed or hard copy printed and proofed by a second person.
8. Questionable wells or measurements noted during data compilation need to result in corrective actions if applicable.

# 8.0 HEALTH AND SAFETY

This SOP assumes that only uncontaminated wells are being measured. If not, a current approved site Health and Safety Plan should be consulted..

## 9.0 REFERENCES

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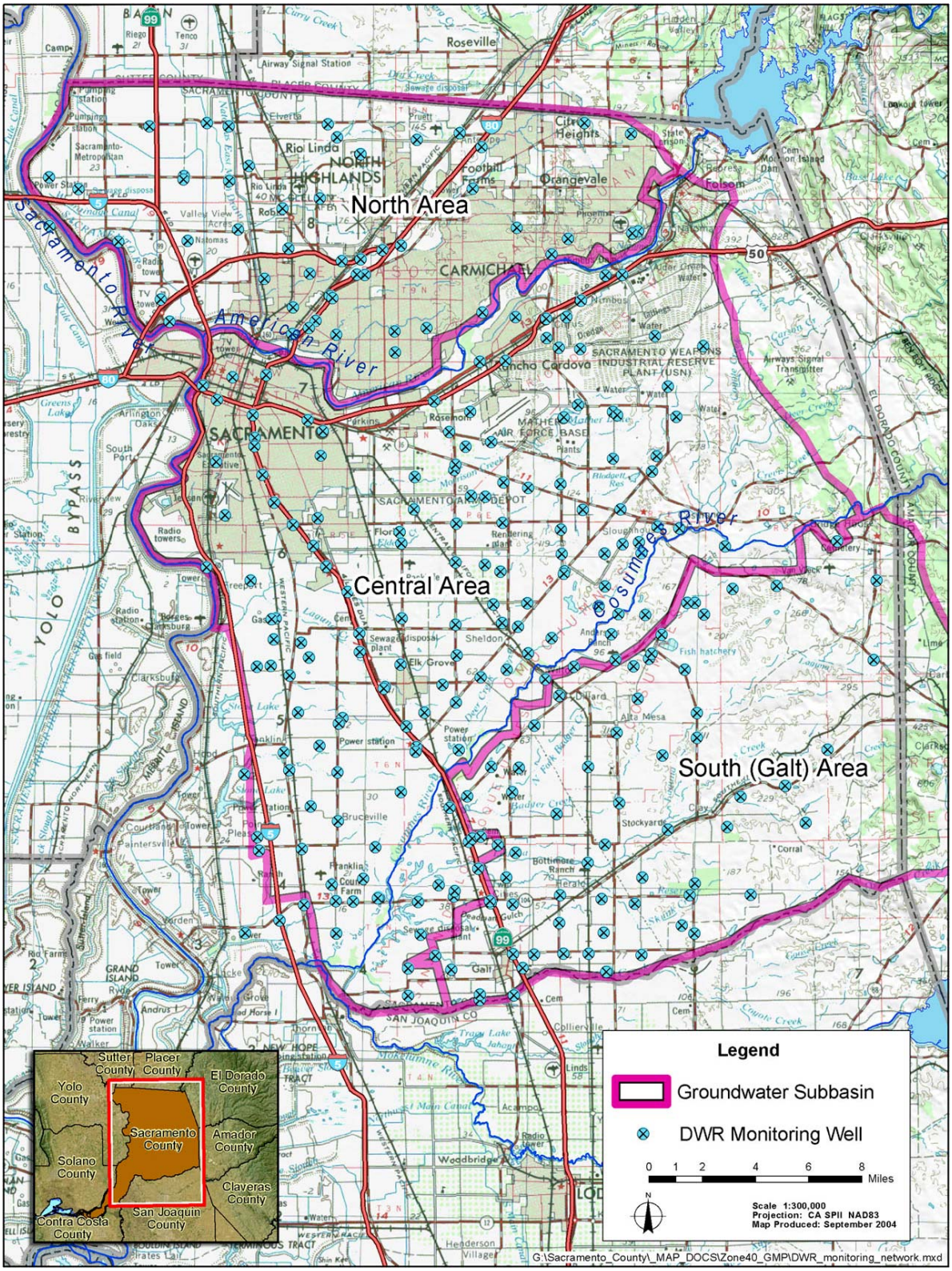


**DWR Groundwater Level Monitoring Network in Sacramento County**
(http://wdl.water.ca.gov)

# Appendix C

## Summary of the Data Management System

# SACRAMENTO COUNTY WATER AGENCY ZONE 40

# DATA MANAGEMENT SYSTEM

# TABLE OF CONTENTS

TABLE OF CONTENTS ..... i
ACRONYMS AND ABBREVIATIONS ..... ii
SECTION 1.0 INTRODUCTION ..... 1
SECTION 2.0 USER REQUIREMENTS ..... 1
2.1 Hardware ..... 1
2.2 Software ..... 1
2.3 Expertise/Training ..... 2
SECTION 3.0 DMS PRIMARY FUNCTIONS ..... 2
3.1 Storing Data ..... 2
3.2 Presenting Data ..... 3
3.3 Using Online Help ..... 3
SECTION 4.0 SUMMARY AND CONCLUSIONS ..... 4
BIBLIOGRAPHY ..... 4
ATTACHMENTS: Zone 40 Geologic Cross-Sections from the Zone 40 DMS

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AFB | Air Force Base |
| CHWD | Citrus Heights Water District |
| ARGET | American River Groundwater Extraction & Treatment |
| COC | Constituents of Concern |
| CWD | Carmichael Water District |
| DHS | Department of Heath Services |
| DMP | Data Management Plan |
| DMS | Data Management System |
| DPMWD | Del Paso Manor Water District |
| DPR | California Department of Pesticide Regulations |
| DWR | California Department of Water Resources |
| DWSAP | Drinking Water Source Assessment and Protection Program |
| ELAP | Environmental Laboratory Accreditation Program |
| EPA | Environmental Protection Agency |
| FOWD | Fair Oaks Water District |
| GEIMS | Geographic Environmental Information Management Systems |
| IS | Internal Standards |
| LCS | Laboratory Spike Control |
| LLNL | Lawrence Livermore National Laboratories |
| MCL | Maximum Containment Levels |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| MWH | Montgomery Watson Harza |

| | |
|---|---|
| OWC | Orangevale Water Company |
| PCE | Perchloroethylene |
| QA/QC | Quality Assurance / Quality Control |
| RLECWD | Rio Linda/Elverta Community Water District |
| RWMP | Regional Water Master Plan |
| RWQCB | Regional Water Quality Control Board |
| SAWWA | Sacramento Area Water Works Association |
| SCADA | Supervisory Control and Data Acquisition |
| SCWA | Sacramento County Water Agency |
| SCWC | Southern California Water Company |
| SMWA | Sacramento Metropolitan Water Authority |
| SGA | Sacramento Groundwater Authority |
| SOC | Synthetic Organic Compounds |
| SOP | Standard Operating Procedures |
| SOW | Scope of Work |
| TCE | Trichloroethylene |
| TDS | Total Dissolved Solids |
| USGS | U.S. Geological Survey |
| VOC | Volatile Organic Compounds |

# 1.0 INTRODUCTION

The overall objective of the DMS project is to develop a cost-effective groundwater data management tool. This DMS will be used to store and present the data required to monitor existing and future conditions of the groundwater basin underlying the boundaries of Zone 40.

The purpose of Task 7 is to document the software used in developing the DMS and provide a basic overview of the DMS features. The task also involves providing a general overview of how the primary functions of the DMS are performed.

This Task 7 summary memorandum is organized into the following sections:

Section 1: Introduction, including the purpose and scope of this document.

Section 2: User Requirements, including hardware, software, expertise, and training requirements necessary to operate the DMS to its full capacity.

Section 3: DMS Primary Functions, including a summary of the types of data that can be stored in the DMS, the types of ways the DMS can present the stored data, and a guide to the on-line help features.

Section 4: Summary and Recommendations

Bibliography

Attachments

# 2.0 USER REQUIREMENTS

MWH developed the DMS using Microsoft Visual Basic. The Visual Basic programming language allows for development of stand-alone applications that require no additional licensing or software purchases. The DMS stores and manages data using a SQL database that is compatible with Microsoft Access. The DMS is a software package that is installed on a computer similar to any stand-alone application. A CD will be provided for installation of the DMS and associated groundwater data. To use the DMS to its fullest capacity, the User should meet the following hardware, software, expertise, and training requirements.

## 2.1 Hardware

Required: Laptop or desktop computer (300 MHz or faster) running the Microsoft Windows operating system.

## 2.2 Software

Required: Microsoft Windows 98, 2000, or NT

Suggested support software that is automated by the DMS includes:

- **Seagate Crystal Reports,** for printing and developing custom reports;
- **Golden Software Surfer 7.0**, for printing of cross-section and contour data, and
- **Microsoft Excel**, for printing graphs

The DMS can run with or without these applications. The User is referred to the individual software documentation for the above programs as needed.

## 2.3 Expertise/Training

User familiarity with typical Microsoft Windows based programs and database functions is assumed. No programming skills are necessary.

The DMS is one of many tools used for management of the groundwater basin. To fully benefit from the DMS, it is preferable that the User posses familiarity with geology and groundwater terminology, and additional knowledge of the groundwater basin's characteristics (i.e., hydrogeology, water purveyors, conjunctive use programs, etc.), and the regulatory reporting requirements.

Although the DMS has been made as User-friendly as possible, some training will be required for efficient operation. It is anticipated that more comprehensive training as well as a more focused training manual will be provided to Zone 40 under a subsequent scope of work after the actual User has been identified.

# 3.0 DMS PRIMARY FUNCTIONS

Because the DMS is designed to support Zone 40's groundwater monitoring program, the main features of the program focus on storing and presenting data for groundwater levels and groundwater quality. Supplemental data, such as well construction, pump specifications, geologic descriptions, pumping amounts, and wellhead source protection are also included.

The primary tasks that the DMS can be used to perform are described in this section.

## 3.1 Storing Data

The database contains 26 tables and over 256 data fields. The following is a summary of the kinds of information stored for a selected well:

- **Water Purveyor,** including contact names, addresses, and phone numbers.
- **Well Inventory Information,** including purveyor, well names, locations, survey data, and accessibility.
- **Well Location Information,** including well names, addresses, communities served, and ground surface elevations.
- **Well Construction Information,** including installation date, depth, boring and construction details, screen intervals, and integrity.
- **Well Pump Information,** including pump models, sizes, capacities, and control.
- **Geological and Aquifer Information,** including subsurface stratigraphy, lithology, and aquifer physical parameters (transmissivity, hydraulic conductivity, porosity, pump test results, geophysical logs).
- **Wellhead Protection Information,** including well seal details, length of gravel pack, distance to sewer, enclosure type, and area surface drainage information.

- **Water Level Data,** including measurement dates, depths to water, measurement devices, and standing water elevations.

- **Groundwater Extraction Information,** including measurement frequency and production volumes.

- **Surface Water Use Data,** including annual and monthly surface water use for the DMS water providers.

- **Well Injection Information,** used for monitoring conjunctive use programs where treated surface water is injected through the selected well. These data include monthly and annual surface water volumes.

- **Well Water Quality Data,** including sample dates, constituents reported, analytical results, maximum contaminant limits, reported detection limits, and data flags.

The DMS includes additional features to provide consistent data entry and to secure data once it is saved. The User is asked to enter into a data edit mode before any changes or additions can be made, and upon completion the User is asked to commit changes before saving to the database. All data is portable through copy and paste commands to other program environments such as Microsoft Excel.

## 3.2 Presenting Data

The DMS can present stored information in the following ways:

- Comprehensive raw data tables (the database tables used by the DMS).

- Purveyor filtered data tables where the wells and associated information are based on the selected purveyor.

- Filtered data tables are presented according to parameters selected using the Query Building Tool.

- Visual formats including well cross section diagrams, street maps, contours, coloration based on well attributes, and graphs.

Additional presentation tools are provided through automation of Golden Software Surfer, Seagate Crystal Reports, and Microsoft Excel. These applications are used to supplement the DMS with a set of quality graphics for use in reporting on and documenting the basin's performance.

## 3.3 Using On-line Help

The DMS has an on-line help feature that will guide the User through the various features. Included as Appendix A are excerpts from the on-line Help for a brief orientation to the DMS. Additional on-line Help will be developed as needed under a subsequent scope of work.

## 4.0 SUMMARY AND CONCLUSIONS

The DMS has User requirements including hardware, software, expertise, and training for successful operation. Zone 40 will need to employ a person with several different discipline skills for successful operation of the DMS, including database and hydrogeology expertise. At that time, the DMS will be installed on Zone 40 computer hardware, more comprehensive training will be provided, and security measures will be developed under a separate scope of work.

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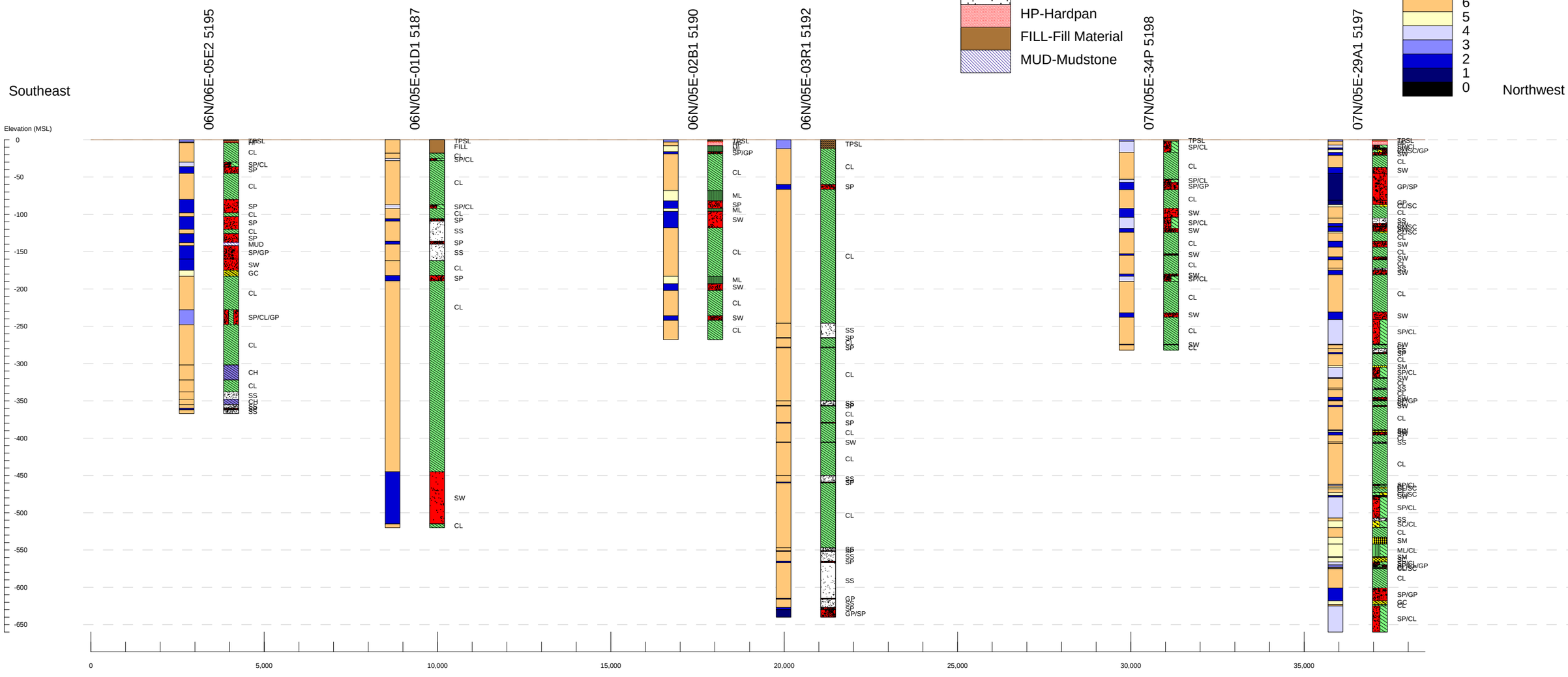
# Zone 40 Data Management System

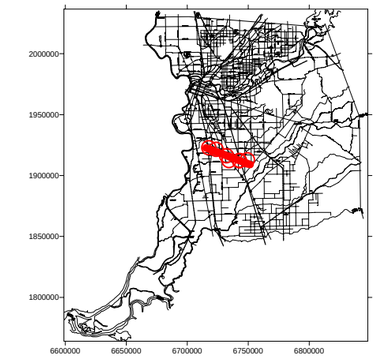
## Cross Section Z40A-A




Lithology Hatching Patterns

Legend

- GP-Poorly graded gravel
- SP-Poorly-graded sand
- SW-Well-graded sand fine to coarse sand
- GC-Gravel with fines clayey gravel
- SM-Sand with fines silty sand
- SC-Sand with fines clayey sand
- ML-Inorganic silt
- CH-Inorganic clay of high plasticity fat clay
- CL-Inorganic clay
- SS-Sandstone
- HP-Hardpan
- FILL-Fill Material
- MUD-Mudstone




Relative K-Value

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# Zone 40 Data Management System

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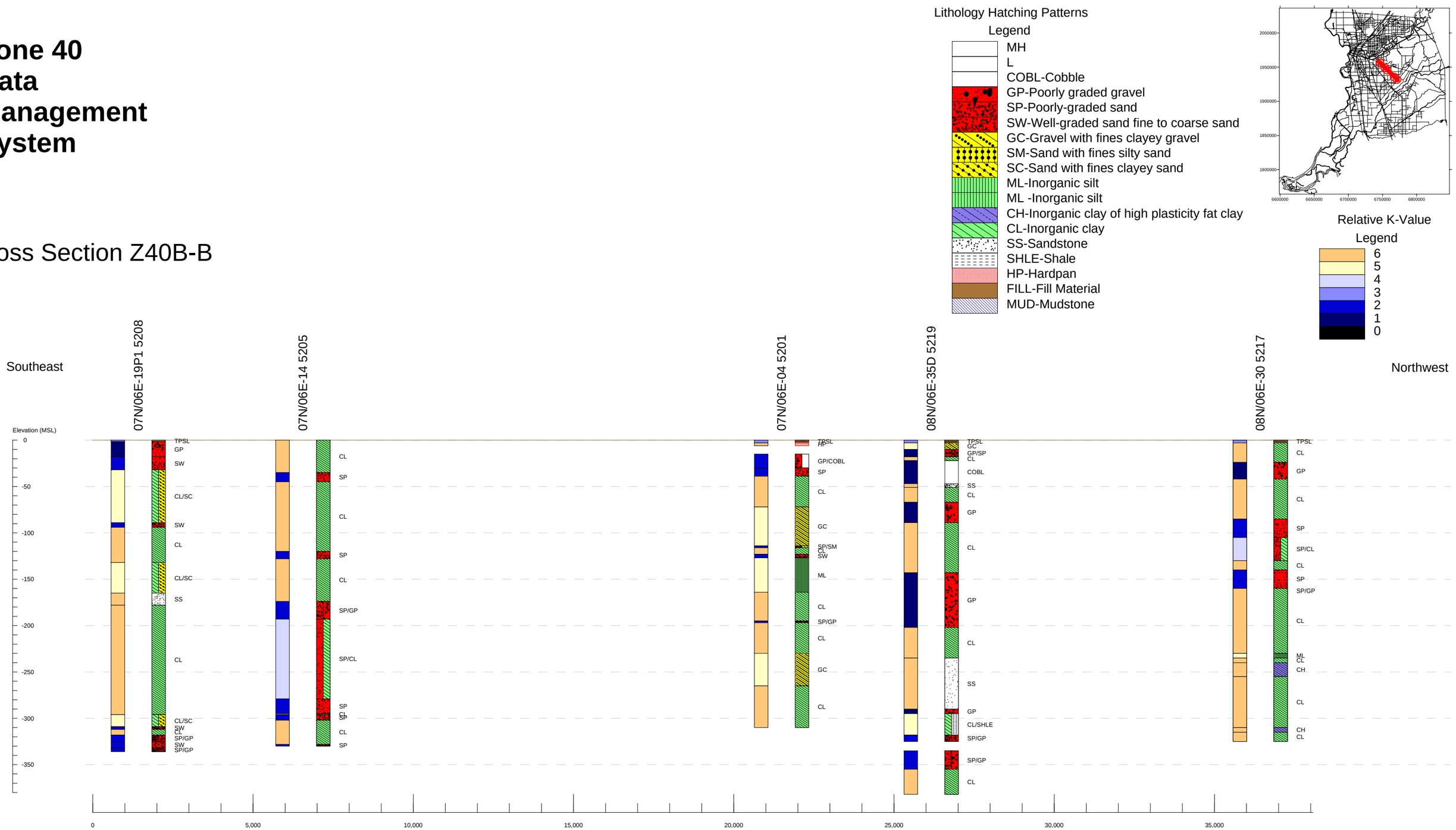

# Zone 40 Data Management System

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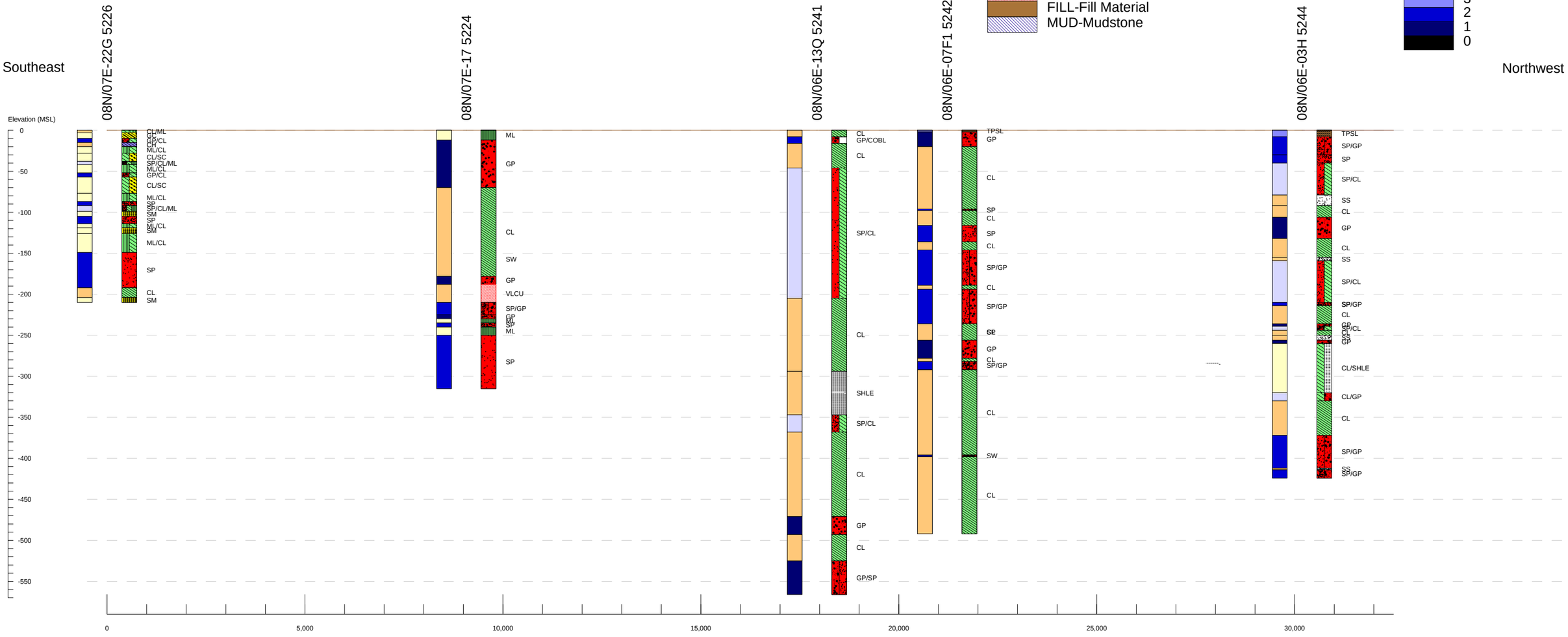


Lithology Hatching Patterns

Legend

- MH
- L
- COBL-Cobble
- GP-Poorly graded gravel
- SP-Poorly-graded sand
- SW-Well-graded sand fine to coarse sand
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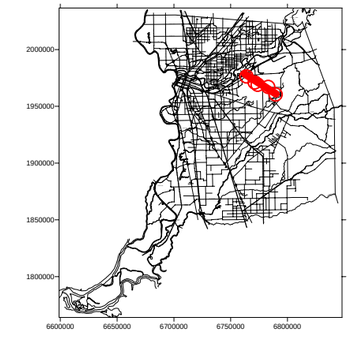
- SS-Sandstone
- SHLE-Shale
- HP-Hardpan
- VLCU-Volcanic Rock
- FILL-Fill Material
- MUD-Mudstone




Relative K-Value

Legend

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- 4
- 3
- 2
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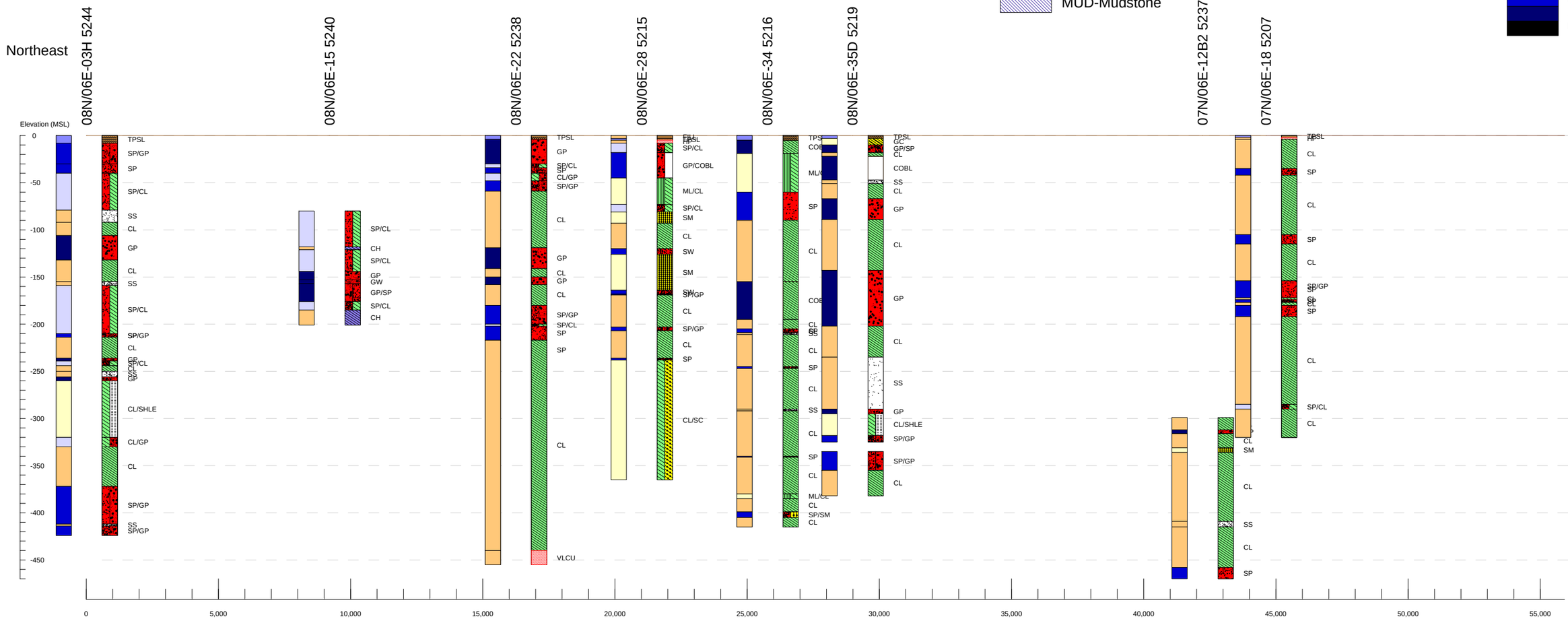
# Zone 40 Data Management System

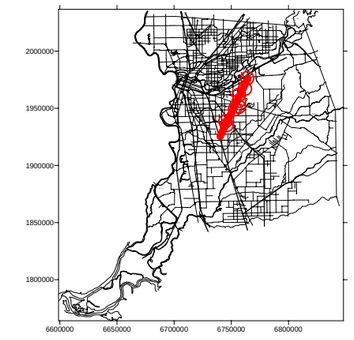
## Cross Section Z40D-D




Lithology Hatching Patterns

Legend

- MH
- L
- COBL-Cobble
- GP-Poorly graded gravel
- GW-Well-graded fine to coarse gravel
- SP-Poorly-graded sand
- SW-Well-graded sand fine to coarse sand
- GC-Gravel with fines clayey gravel
- SM-Sand with fines silty sand
- SC-Sand with fines clayey sand
- ML-Inorganic silt
- ML -Inorganic silt
- CH-Inorganic clay of high plasticity fat clay
- CL-Inorganic clay
- SS-Sandstone
- SHLE-Shale
- HP-Hardpan
- VLCU-Volcanic Rock
- FILL-Fill Material
- MUD-Mudstone



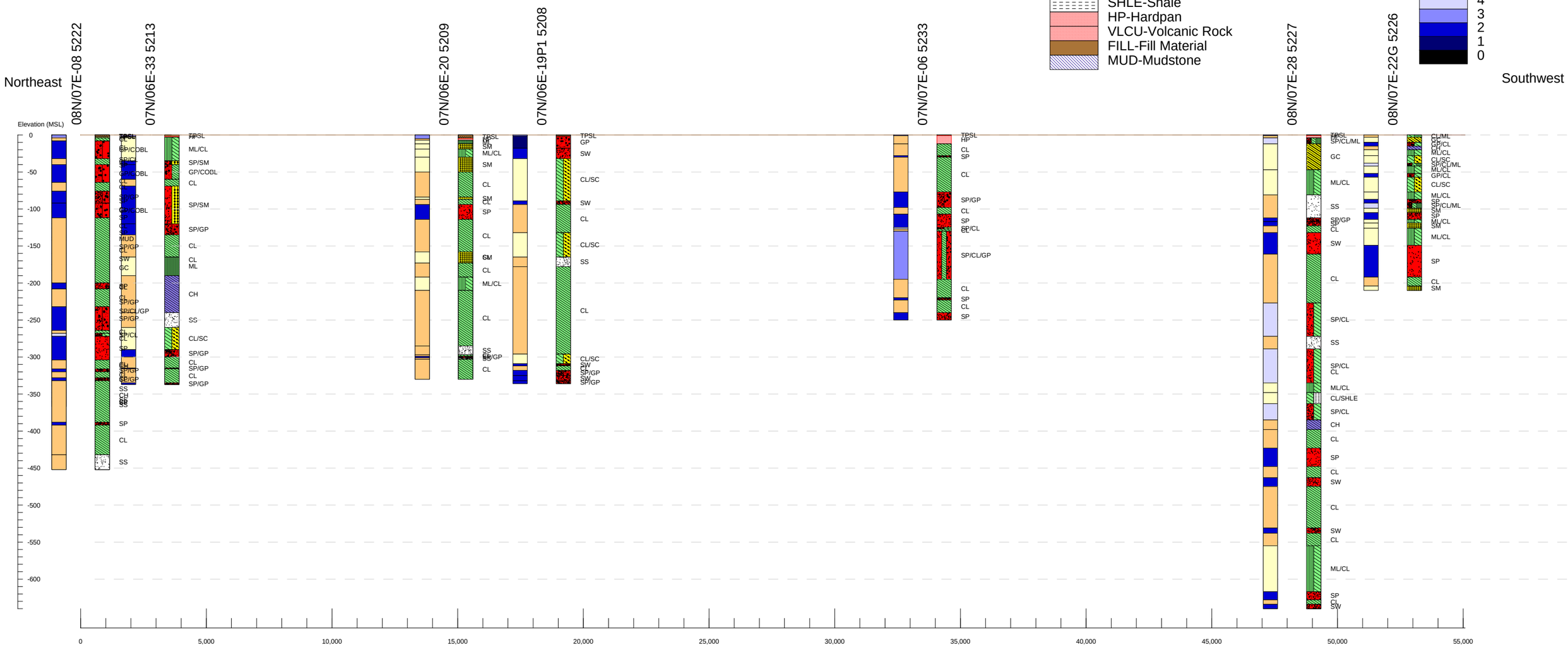

Relative K-Value

Legend

- 6
- 5
- 4
- 3
- 2
- 1
- 0

# Zone 40 Data Management System

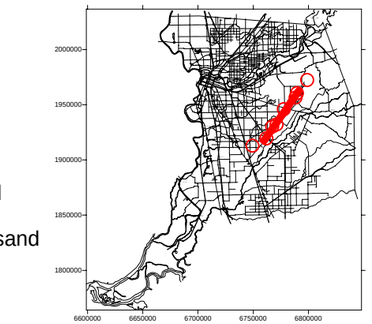
## Cross Section Z40E-E




Lithology Hatching Patterns

Legend

- MH
- L
- COBL-Cobble
- GP-Poorly graded gravel
- GW-Well-graded fine to coarse gravel
- SP-Poorly-graded sand
- SW-Well-graded sand fine to coarse sand
- GC-Gravel with fines clayey gravel
- SM-Sand with fines silty sand
- SC-Sand with fines clayey sand
- ML-Inorganic silt
- ML -Inorganic silt
- CH-Inorganic clay of high plasticity fat clay
- CL-Inorganic clay
- SS-Sandstone
- SHLE-Shale
- HP-Hardpan
- VLCU-Volcanic Rock
- FILL-Fill Material
- MUD-Mudstone

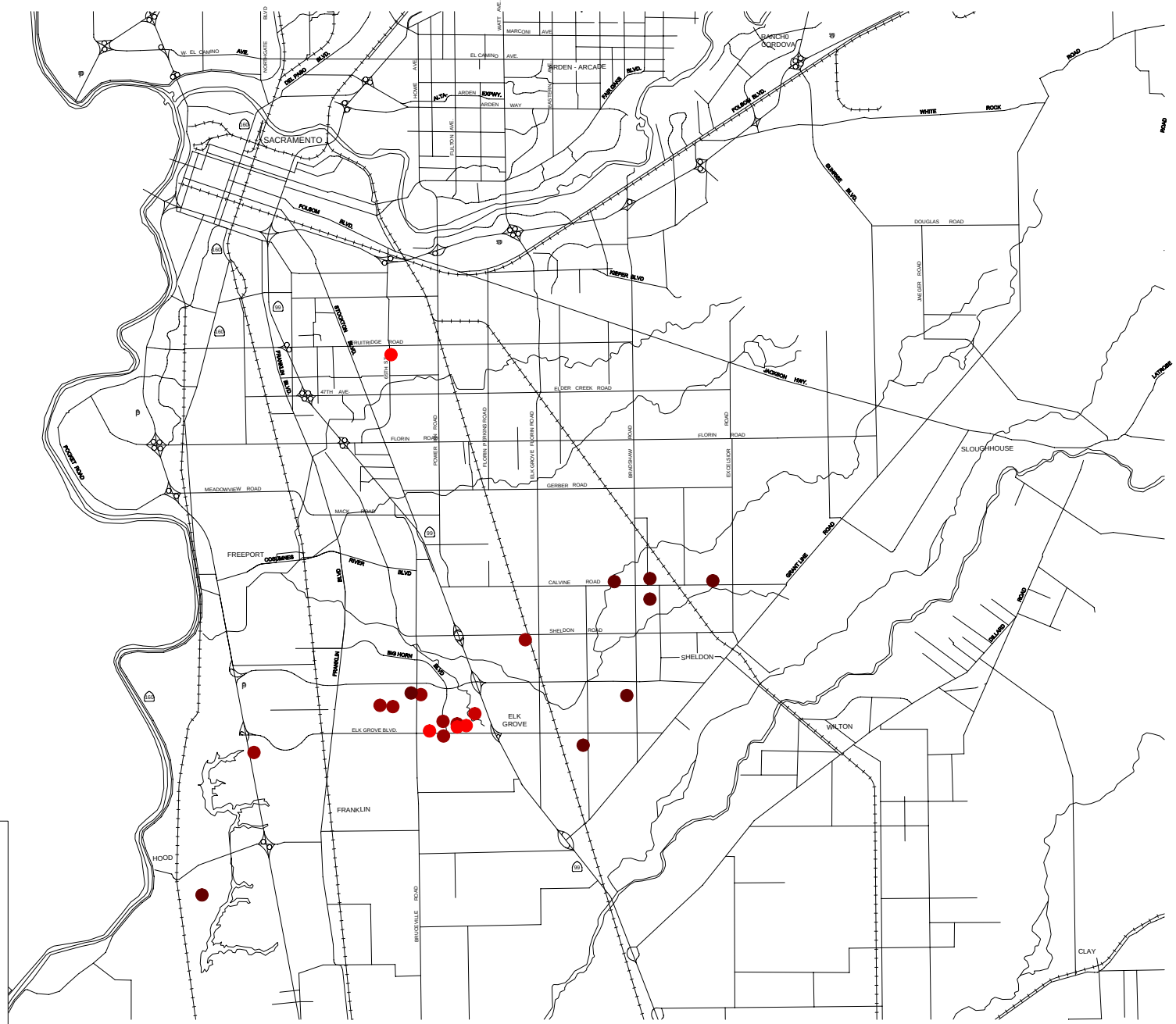



Relative K-Value

Legend

- 6
- 5
- 4
- 3
- 2
- 1
- 0

# Zone 40 Data Management System




Detected Arsenic Levels
(micro grams per liter)

- 0 to 0
- 0 to 5
- 5 to 10
- 10 to 15
- 15 to 20
- 20 to 25

0feet 80000feet 160000feet

P:\Sacramento_County\SCWA\Proposition 50-- GMP\GMP Development\GMP_Figures\Aresenic.srf

MWH

SACRAMENTO COUNTY
WATER AGENCY

# STANDARD OPERATING PROCEDURE

# For

# MANUAL WATER LEVEL MEASUREMENTS

# APPENDIX E

CALIFORNIA URBAN WATER CONSERVATION COUNCIL BMP ACTIVITY REPORTS FOR 2001-2002 AND 2003-2004

# Best Management Practices Report Filing

Sacramento County Water Agency

# Water Supply & Reuse – Laguna/Vineyard

240 Report Year 2001/2002

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Memorandum of Understanding

## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **2001** | 12/11/2002 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| Union Industria | 5 | Groundwater | Update | |
| Survey Road | 110 | Groundwater | Update | Delete |
| Stockton Bl | .3 | Groundwater | Update | Delete |
| Bruceville | 763 | Groundwater | Update | Delete |
| Seasons | 631 | Groundwater | Update | Delete |
| Banyon | 162 | Groundwater | Update | Delete |
| Duck Slough | 612 | Groundwater | Update | Delete |
| Kilconnell | 283 | Groundwater | Update | Delete |
| Acropolis | 394 | Groundwater | Update | Delete |
| Feather Creek | 822 | Groundwater | Update | Delete |
| Wadena | 826 | Groundwater | Update | Delete |
| Soaring Oaks | 860 | Groundwater | Update | Delete |
| Big Horn South | 1501 | Groundwater | Update | Delete |
| Big Horn Cente | 1252 | Groundwater | Update | Delete |
| Big Horn North | 1495 | Groundwater | Update | Delete |
| Caymus | 978 | Groundwater | Update | Delete |
| Andalusian | 91 | Groundwater | Update | Delete |
| Equine | 264 | Groundwater | Update | Delete |
| Westray | 779 | Groundwater | Update | Delete |
| Sheldon North | 230 | Groundwater | Update | Delete |
| Calvine Meado | 595 | Groundwater | Update | Delete |
| Waterman Roa | 1166 | Groundwater | Update | Delete |
| Tillotson | 945 | Groundwater | Update | Delete |
| Perry Ranch | 1286 | Groundwater | Update | Delete |
| | | Groundwater | | |

| | | | | |
|---|---|---|---|---|
| Lakeside Well | 272 | | Update | Delete |
| Dwight Road R | 469 | Groundwater | Update | Delete |
| Plant Well | 95 | Groundwater | Update | Delete |
| Bleckley | .2 | Groundwater | Update | Delete |
| Femoyer | .6 | Groundwater | Update | Delete |
| Mather | .8 | Groundwater | Update | Delete |
| Kurtz | 1190 | Groundwater | Update | Delete |
| McRoberts | 245 | Groundwater | Update | Delete |
| Franklin Booste | 3044 | Imported | Update | Delete |

**Total AF: 21366.9**

**ADD Water Supply Sources:**

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |



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## Accounts & Water Use

| Reporting Unit Name: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **12/11/2002** | **2001** |

### A. Service Area Population Information:

| | |
|---|---|
| 1. Total service area population | 54903 |

### B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|---|---|---|---|---|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 4478 | 3139 | 19737 | 13834 |
| 2. Multi-Family | 110 | 210 | 5 | 10 |
| 3. Commercial | 453 | 1785 | 60 | 236 |
| 4. Industrial | 297 | 1016 | 31 | 106 |
| 5. Institutional | 48 | 526 | 9 | 99 |
| 6. Dedicated Irrigation | 406 | 2369 | 0 | 0 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 0 | 0 | 93 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| **Total** | 5792 | 9045 | 19935 | 14285 |
| AF Conversion Calculator: | **Metered** | | **Unmetered** | |



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Memorandum of Understanding

## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is no later than: | 12/09/1993 |
| ? | 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |
| ? | 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |

### B. Water Survey Data

| Survey Counts | | Single Family Accounts | Multi-Family Units |
|---|---|---|---|
| | 1. Number of surveys offered: | 24215 | 1248 |
| | 2. Number of surveys completed: | 156 | 0 |
| **Indoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 3. Check for leaks, including toilets, faucets and meter checks | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| **Outdoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 6. Check irrigation system and timers | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 7. Review or develop customer irrigation schedule | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 8. Measure landscaped area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | 9. Measure total irrigable area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | | | |

| | | | |
|---|---|---|---|
| | 10. Which measurement method is typically used (Recommended but not required for surveys) | Image-Based ○<br>Measuring Tape ○<br>Odometer Wheel ○<br>Pacing ○<br>Other ○<br>None ◉ | |
| ? | 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | a. If yes, in what form are surveys tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ | |
| | b. Describe how your agency tracks this information. | Access database | |

## C. Water Survey Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 56000 | 56000 |
| ? | 2. Actual Expenditures | 27564 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

## E. Comments

Budget amount is for APV and Laguna reporting units. Expenditures are for Laguna only.

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## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? | Yes ○ No ◉ |
| ? | a. If YES, list local jurisdictions in your service area and code or ordinance in each: | |
| ? | 2. Has your agency satisfied the 75% saturation requirement for single-family housing units? | Yes ○ No ◉ |
| ? | 3. Estimated percent of single-family households with low-flow showerheads: | 69 % |
| ? | 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? | Yes ◉ No ○ |
| ? | 5. Estimated percent of multi-family households with low-flow showerheads: | 98 % |
| | 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research. | |

Called all apartment complexes during week of 11/18. All complexes except one were built after 1992. The one complex that was built before 1992 has been 90%

### B. Low-Flow Device Distribution Information

| | | |
|---|---|---|
| ? | 1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? | Yes ○ No ◉ |
| | a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy) | |
| | b. Describe your targeting/ marketing strategy. | |

| ? | Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|---|
| | 2. Number of low-flow showerheads distributed: | 12 | 0 |
| | 3. Number of toilet-displacement devices distributed: | 14 | 0 |
| | 4. Number of toilet flappers distributed: | 0 | 0 |
| | 5. Number of faucet aerators distributed: | 42 | 0 |
| ? | 6. Does your agency track the distribution and cost of low-flow devices? | | Yes ◉ |

| | | |
|---|---|---|
| | | No ○ |
| | a. If YES, in what format are low-flow devices tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ |
| | b. If yes, describe your tracking and distribution system : | |

Numbers of low-flow devices that are distributed during water surveys are tracked in the water survey database.

## C. Low-Flow Device Distribution Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 60.62 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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."

## E. Comments

Budget for plumbing retrofits is included in the water audit budget, therefore is $0 on this BMP.

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ● |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ● |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ● |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ○ No ● |
| | 6. Does your agency operate a system leak detection program? | Yes ● No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 356.5 |
| | 2. Number of miles of distribution system line surveyed: | 0 |

### C. System Audit / Leak Detection Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 264088.72 | 277293.16 |
| ? | 2. Actual Expenditures | 264088.72 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

## E. Comments

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Memorandum of Understanding

## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| | 1. Does your agency require meters for all new connections and bill by volume-of-use? | Yes ◉ No ○ |
| ? | 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | Yes ◉ No ○ |
| | a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? (Year must be four digit mm/dd/yyyy) | 11/01/1998 |
| | b. Describe the program: | Convert approximately 1200-1800 residential meters per year. Continue flate rate billing and provide comparative data for 1 year. After 1 |
| ? | 3. Number of previously unmetered accounts fitted with meters during report year: | 60 |

### B. Feasibility Study

| | | |
|---|---|---|
| ? | 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | Yes ○ No ◉ |
| | a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| | b. Describe the feasibility study: | |
| ? | 2. Number of CII accounts with mixed-use meters: | 798 |
| ? | 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period | 0 |

### C. Meter Retrofit Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 169,687 | 325800 |
| ? | 2. Actual Expenditures | 65206 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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." | |

## E. Comments

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Memorandum of Understanding

## BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Water Use Budgets

| | | |
|---|---|---|
| | 1. Number of Dedicated Irrigation Meter Accounts: | 406 |
| ? | 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| ? | 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| ? | 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| | 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | Yes ○ No ● |

### B. Landscape Surveys

| | | |
|---|---|---|
| ? | 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | Yes ● No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy) | 01/01/2001 |
| | b. Description of marketing / targeting strategy: All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park | |
| | 2. Number of Surveys Offered: | 1304 |
| | 3. Number of Surveys Completed: | 19 |
| ? | 4. Indicate which of the following Landscape Elements are part of your survey: | |
| | a. Irrigation System Check | Yes ● No ○ |
| | b. Distribution Uniformity Analysis | Yes ● No ○ |
| | c. Review / Develop Irrigation Schedules | Yes ● No ○ |
| | d. Measure Landscape Area | Yes ○ No ● |
| | e. Measure Total Irrigable Area | Yes ○ No ● |
| | f. Provide Customer Report / Information | Yes ● No ○ |
| ? | 5. Do you track survey offers and results? | Yes ● |

| | | |
|---|---|---|
| | | No ○ |
| | 6. Does your agency provide follow-up surveys for previously completed surveys? | Yes ◉<br>No ○ |
| ◇ | a. If YES, describe below:<br>Follow up phone call to determine if recommendations have been implemented. | |

## C. Other BMP 5 Actions

| | | |
|---|---|---|
| ◇ | 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br>Does your agency provide mixed-use accounts with landscape budgets? | Yes ○<br>No ◉ |
| | 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| | 3. Do you offer landscape irrigation training? | Yes ○<br>No ◉ |
| ◇ | 4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below: | Yes ○<br>No ◉ |

| | Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|---|
| | a. Rebates | | | |
| | b. Loans | | | |
| | c. Grants | | | |

| | | |
|---|---|---|
| | 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | Yes ○<br>No ◉ |
| | a. If YES, describe below: | |
| | 6. Do you have irrigated landscaping at your facilities? | Yes ◉<br>No ○ |
| | a. If yes, is it water-efficient? | Yes ○<br>No ◉ |
| | b. If yes, does it have dedicated irrigation metering? | Yes ○<br>No ◉ |
| ◇ | 7. Do you provide customer notices at the start of the irrigation season? | Yes ◉<br>No ○ |
| ◇ | 8. Do you provide customer notices at the end of the irrigation season? | Yes ◉<br>No ○ |

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|
| | | |

| | | | |
|---|---|---|---|
| | 1. Budgeted Expenditures | 14000 | 14000 |
| ? | 2. Actual Expenditures | 3835.35 | |

## E. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

## F. Comments

The budgeted amount is for CII and landscape surveys. Actual expenses are for landscape surveys only.

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# BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

## A. Implementation

| | | |
|---|---|---|
| ? | 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | Yes ◉ No ○ |
| | a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | SMUD is offering $75-$125 rebate when customers purchase an energy efficient clothes washer. Customer must have electric hot water heater |
| | 2. Does your agency offer rebates for high-efficiency washers? | Yes ○ No ◉ |
| ? | 3. What is the level of the rebate? | 0 |
| | 4. Number of rebates awarded. | 0 |

## B. Rebate 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 ○ 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



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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with

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 ◉ No ○ | 13 |
| b. Public Service Announcement | Yes ◉ No ○ | 12 |
| c. Bill Inserts / Newsletters / Brochures | Yes ◉ No ○ | 2 |
| d. Bill showing water usage in comparison to previous year's usage | Yes ◉ No ○ | |
| e. Demonstration Gardens | Yes ◉ No ○ | 0 |
| f. Special Events, Media Events | Yes ◉ No ○ | 7 |
| g. Speaker's Bureau | Yes ○ No ◉ | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 3202 | 2774 |
| 2. Actual Expenditures | 47645 | |

### C. "At Least As Effective As"

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

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## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ◉ No ○

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 ◉ No ○ | 1 | 25 | 0 |
| Grades 4th-6th | Yes ○ No ◉ | 0 | 0 | 0 |
| Grades 7th-8th | Yes ◉ No ○ | 1 | 26 | 0 |
| High School | Yes ○ No ◉ | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 3202 | 2774 |
| 2. Actual Expenditures | 4480 | |

### C. "At Least As Effective As"

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

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## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | | Yes ○ No ◉ |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | | Yes ○ No ◉ |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | | Yes ○ No ◉ |

**Implement ONE or BOTH of the following TWO options:**
- Option A: CII Water Use Survey and Customer Incentives Program
- Option B: CII Conservation Program Targets

NOTE: If you choose to implement NEITHER of options A or B, please skip to section D and enter an explanation.

### Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | Yes ◉ No ○ |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 513 | 328 | 57 |
| b. Number of New Surveys Completed | 10 | 0 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 1 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| f. Evaluation of all water-using apparatus and processes | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |

| Agency CII Customer | Budget ($/Year) | No. Awarded to | Total $ Amount |
|---|---|---|---|

| | Incentives | | Customers | Awarded |
|---|---|---|---|---|
| | h. Rebates | 0 | 0 | 0 |
| | i. Loans | 0 | 0 | 0 |
| | j. Grants | 0 | 0 | 0 |
| | k. Others | 0 | 0 | 0 |

**Option B: CII Conservation Program Targets**

| | | |
|---|---|---|
| | 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | Yes ○ No ◉ |
| ? | 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | Yes ○ No ◉ |
| ? | 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| ? | 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

**B. Conservation Program Expenditures for CII Accounts**

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 14000 | 14000 |
| ? | 2. Actual Expenditures | 673.59 | |

**C. "At Least As Effective As"**

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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**

Budget is for CII and landscape surveys. Actual expenses are half of CII surveys because landscape surveys was completed also.

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## BMP 09a: CII ULFT Water Savings

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10.

Yes ○
No ◉

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

- Consumption ranking ☐
- Service area zones ☐
- Potential savings ☐
- Oldest meter ☐
- CII Sector or subsector ☐
- CII ULFT Study subsector targeting ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

- Direct letter ☐
- Bill insert ☐
- Bill message ☐
- Newsletter ☐
- Telephone ☐
- Web page ☐
- TV PSAs ☐
- TV paid announcements ☐
- Radio PSAs ☐
- Radio paid announcements ☐
- Newspapers ☐
- Trade publications ☐
- Other print media ☐
- Trade shows and events ☐
- Telemarketing ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

## B. Implementation

| | | |
|---|---|---|
| ? | 1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) | Yes ○ No ◉ |
| ? | 2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? | Yes ○ No ◉ |
| ? | 3. What is the total number of customer accounts participating in the program during the last year ? | 0 |

| ? | CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|---|
| | 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| | a. Offices | | | | |
| | b. Retail / Wholesale | | | | |
| | c. Hotels | | | | |
| | d. Health | | | | |
| | e. Industrial | | | | |
| | f. Schools: K to 12 | | | | |
| | g. Eating | | | | |
| | h. Government | | | | |
| | i. Churches | | | | |
| | j. Other | | | | |

| | | |
|---|---|---|
| | 5. Program design. | Rebate or voucher ☐<br>Direct installation ☐<br>Direct installation with customer co-payment ☐<br>Direct distribution ☐<br>Direct distribution with customer co-payment ☐<br>Retrofit on resale ☐<br>Regulated condition of service ☐ |
| | 6. Does your agency use outside services to implement this program? | Yes ○ No ◉ |
| | a. If yes, check all that apply. | Community Based Organization ☐<br>Consultant ☐<br>Plumbing contractors/subcontracts ☐ |
| | 7. Participant tracking and follow-up. | No follow-up ☐<br>Letter ☐<br>Telephone ☐<br>Site Visit ☐ |
| | 8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program. | |

| | |
|---|---|
| a. Disruption to business | |
| b. Inadequate payback | |
| c. Inadequate ULFT performance | |
| d. Lack of funding | |
| e. American's with Disabilities Act | |
| f. Permitting | |
| g. Other. Please describe in B. 9. | |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

N/A - haven't started program yet.
Program to start in 2003.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 2250 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 2250 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | | |
|---|---|---|
| a. Wholesale agency contribution | | 0 |

| | | | | |
|---|---|---|---|---|
| | | b. State agency contribution | | 0 |
| | | c. Federal agency contribution | | 0 |
| | | d. Other contribution | | 0 |
| | | e. Total | | 0 |

## D. Comments

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

## A. Implementation

| | | |
|---|---|---|
| | **Rate Structure Data Volumetric Rates for Water Service by Customer Class** | |
| | **1. Residential** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $574339 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $3477626 |
| | **2. Commercial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $644670 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $53052 |
| | **3. Industrial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $188220 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $34418 |
| | **4. Institutional / Government** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $525284 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $8425 |
| | **5. Irrigation** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $375632 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **6. Other** | |
| | **a. Water Rate Structure** | |

| | | |
|---|---|---|
| | | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $ 515811 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $ 1204309 |

## B. Conservation Pricing Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 36570 | 64770 |
| ? | 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 ○ 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."

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## BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 60 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 2 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

### B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 39191 | 41150 |
| 2. Actual Expenditures | 39191 | |

### C. "At Least As Effective As"

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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." | |

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## BMP 13: Water Waste Prohibition

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — Yes ◉ No ○

a. If YES, describe the ordinance:

The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow

2. Is a copy of the most current ordinance(s) on file with CUWCC? — Yes ◉ No ○

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Laguna Vineyard | 5509 Adobe Spring Way - water running off the property 8960 Bertwin |

### B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

| | |
|---|---|
| a. Gutter flooding | Yes ◉ No ○ |
| b. Single-pass cooling systems for new connections | Yes ◉ No ○ |
| c. Non-recirculating systems in all new conveyor or car wash systems | Yes ◉ No ○ |
| d. Non-recirculating systems in all new commercial laundry systems | Yes ◉ No ○ |
| e. Non-recirculating systems in all new decorative fountains | Yes ◉ No ○ |
| f. Other, please name: Odd-even watering schedule, no | Yes ◉ No ○ |

2. Describe measures that prohibit water uses listed above:

1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday.

### Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

| | | |
|---|---|---|
| | a. Allow the sale of more efficient, demand-initiated regenerating DIR models. | Yes ○ No ◉ |
| | b. Develop minimum appliance efficiency standards that: | |
| | i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. | Yes ○ No ◉ |
| | ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | Yes ○ No ◉ |
| | c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. | Yes ○ No ◉ |
| | 4. Does your agency include water softener checks in home water audit programs? | Yes ○ No ◉ |
| | 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | Yes ○ No ◉ |

## C. Water Waste Prohibition Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 22200 | 30000 |
| ? | 2. Actual Expenditures | 11155 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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." | |

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## BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 12/05/2002 | **2001** |

### A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | Yes ○ No ◉ | Yes ○ No ◉ |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 0 | 0 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **0** | **0** |

6. Describe your agency's ULFT program for single-family residences.

7. Describe your agency's ULFT program for multi-family residences.

8. Is a toilet retrofit on resale ordinance in effect for your service area? Yes ○ No ◉

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

### B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 32250 |
| 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 ○<br>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

Program to begin in 2003.

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## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **2002** | 01/31/2003 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| Union Industria | 2 | Groundwater | Update | |
| Survey Road | 19 | Groundwater | Update | Delete |
| Bruceville | 1193 | Groundwater | Update | Delete |
| Seasons | 762 | Groundwater | Update | Delete |
| Banyon | 500 | Groundwater | Update | Delete |
| Duck Slough | 508 | Groundwater | Update | Delete |
| Kilconnell | 515 | Groundwater | Update | Delete |
| Acropolis | 576 | Groundwater | Update | Delete |
| Feather Creek | 426 | Groundwater | Update | Delete |
| Wadena | 959 | Groundwater | Update | Delete |
| Soaring Oaks | 828 | Groundwater | Update | Delete |
| Big Horn South | 1285 | Groundwater | Update | Delete |
| Big Horn Cente | 730 | Groundwater | Update | Delete |
| Big Horn North | 828 | Groundwater | Update | Delete |
| Caymus | 410 | Groundwater | Update | Delete |
| Andalusian | 64 | Groundwater | Update | Delete |
| Equine | 382 | Groundwater | Update | Delete |
| Westray | 1101 | Groundwater | Update | Delete |
| Sheldon North | 149 | Groundwater | Update | Delete |
| Calvine Meado | 980 | Groundwater | Update | Delete |
| Waterman Roa | 787 | Groundwater | Update | Delete |
| Tillotson | 931 | Groundwater | Update | Delete |
| Perry Ranch | 1579 | Groundwater | Update | Delete |
| Lakeside Well | 13 | Groundwater | Update | Delete |
| Dwight Road R | 506 | Groundwater | Update | Delete |
| Plant Well | 578 | Groundwater | Update | Delete |
| Bleckley | 62 | Groundwater | Update | Delete |
| Femoyer | 4 | Groundwater | Update | Delete |
| Mather | 642 | Groundwater | Update | Delete |
| Kurtz | 470 | Groundwater | Update | Delete |

| | | | | |
|---|---|---|---|---|
| McRoberts | 165 | Groundwater | Update | Delete |
| Franklin Booste | 4355 | Imported | Update | Delete |
| W. Stockton Bl. | 86 | Groundwater | Update | Delete |
| East Park | 1473 | Groundwater | Update | Delete |
| Legends | 1 | Groundwater | Update | Delete |
| Saddle Creek | 50 | Groundwater | Update | Delete |
| Mercantile Boo | 691 | Imported | Update | Delete |

**Total AF: 24610**

**ADD Water Supply Sources:**

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |



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## Accounts & Water Use

| Reporting Unit Name: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **01/31/2003** | **2002** |

### A. Service Area Population Information:

| | |
|---|---|
| 1. Total service area population | 60506 |

### B. Number of Accounts and Water Deliveries (AF)

| | Type | Metered | | Unmetered | |
|---|---|---|---|---|---|
| | | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| | 1. Single-Family | 7266 | 5015 | 18818 | 12987 |
| | 2. Multi-Family | 110 | 255 | 5 | 12 |
| | 3. Commercial | 521 | 2007 | 47 | 181 |
| | 4. Industrial | 335 | 1229 | 13 | 48 |
| | 5. Institutional | 49 | 463 | 9 | 85 |
| | 6. Dedicated Irrigation | 427 | 3522 | 0 | 0 |
| | 7. Recycled Water | 0 | 0 | 0 | 0 |
| | 8. Other | 0 | 0 | 93 | 0 |
| | 9. Unaccounted | NA | 0 | NA | 0 |
| | **Total** | 8708 | 12491 | 18985 | 13313 |
| | AF Conversion Calculator: | **Metered** | | **Unmetered** | |

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Memorandum of Understanding

## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is no later than: | 12/09/1993 |
| ? | 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |
| ? | 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |

### B. Water Survey Data

| | Survey Counts | Single Family Accounts | Multi-Family Units |
|---|---|---|---|
| | 1. Number of surveys offered: | 26084 | 1248 |
| | 2. Number of surveys completed: | 135 | 0 |
| | **Indoor Survey:** | **SF Accounts** | **MF Units** |
| ? | 3. Check for leaks, including toilets, faucets and meter checks | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| | **Outdoor Survey:** | **SF Accounts** | **MF Units** |
| ? | 6. Check irrigation system and timers | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 7. Review or develop customer irrigation schedule | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 8. Measure landscaped area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | 9. Measure total irrigable area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | | | |

| | | | |
|---|---|---|---|
| | 10. Which measurement method is typically used (Recommended but not required for surveys) | Image-Based ○<br>Measuring Tape ○<br>Odometer Wheel ○<br>Pacing ○<br>Other ○<br>None ◉ | |
| ? | 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | a. If yes, in what form are surveys tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ | |
| | b. Describe how your agency tracks this information. | Access database | |

## C. Water Survey Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 56000 | 56000 |
| ? | 2. Actual Expenditures | 25000 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

## E. Comments

Budget amount is for Arden Park Vista and Laguna/Vineyard. Expenditures are for Laguna/Vineyard only.

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## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? | Yes ○ No ◉ |
| ? | a. If YES, list local jurisdictions in your service area and code or ordinance in each: | |
| ? | 2. Has your agency satisfied the 75% saturation requirement for single-family housing units? | Yes ○ No ◉ |
| ? | 3. Estimated percent of single-family households with low-flow showerheads: | 73 % |
| ? | 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? | Yes ◉ No ○ |
| ? | 5. Estimated percent of multi-family households with low-flow showerheads: | 98 % |
| | 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research. | Called all apartment complexes during week of 11/18/2002. All complexes except one were built after 1992. The one complex that was built before 1992 |

### B. Low-Flow Device Distribution Information

| | | |
|---|---|---|
| ? | 1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? | Yes ◉ No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy) | 01/01/2002 |
| | b. Describe your targeting/ marketing strategy. | Door-to-door distribution to pre 1992 residences. |

| ? | Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|---|
| | 2. Number of low-flow showerheads distributed: | 844 | 0 |
| | 3. Number of toilet-displacement devices distributed: | 422 | 0 |
| | 4. Number of toilet flappers distributed: | 0 | 0 |
| | 5. Number of faucet aerators distributed: | 1688 | 0 |
| ? | 6. Does your agency track the distribution and cost of low-flow devices? | | Yes ◉ |

| | | |
|---|---|---|
| | | No ○ |
| | a. If YES, in what format are low-flow devices tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ |
| | b. If yes, describe your tracking and distribution system : | |

Access database

## C. Low-Flow Device Distribution Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 4039.95 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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."

## E. Comments

Budget for plumbing retrofits is included in the water audit budget, therefore is $0 in this BMP.

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ● |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ● |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ● |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ● No ○ |
| | 6. Does your agency operate a system leak detection program? | Yes ● No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. Hired a consultant to perform leak detection on 2 miles of pipe in Sunrise | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 375 |
| | 2. Number of miles of distribution system line surveyed: | 2 |

### C. System Audit / Leak Detection Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 278450 | 292372 |
| ? | 2. Actual Expenditures | 278450 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

## E. Comments

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## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| | 1. Does your agency require meters for all new connections and bill by volume-of-use? | Yes ◉ No ○ |
| ? | 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | Yes ◉ No ○ |
| | a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? (Year must be four digit mm/dd/yyyy) | 11/01/1998 |
| | b. Describe the program: | Convert approximately 1200-1800 residential meters per year. Continue flate rate billing and provide comparative data for 1 year. After 1 |
| ? | 3. Number of previously unmetered accounts fitted with meters during report year: | 719 |

### B. Feasibility Study

| | | |
|---|---|---|
| ? | 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | Yes ○ No ◉ |
| | a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| | b. Describe the feasibility study: | |
| ? | 2. Number of CII accounts with mixed-use meters: | 905 |
| ? | 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period | 0 |

### C. Meter Retrofit Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 325800 | 434400 |
| ? | 2. Actual Expenditures | 244402 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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." | |

## E. Comments

SCWA mixed use meter numbers are less than reported, but we currently have no easy way to determine the correct number without going to each account

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# BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

## A. Water Use Budgets

| | | |
|---|---|---|
| | 1. Number of Dedicated Irrigation Meter Accounts: | 427 |
| ? | 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 5 |
| ? | 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 111 |
| ? | 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 71 |
| | 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | Yes ○ No ● |

## B. Landscape Surveys

| | | |
|---|---|---|
| ? | 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | Yes ● No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy) | 01/01/2001 |
| | b. Description of marketing / targeting strategy: All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park | |
| | 2. Number of Surveys Offered: | 1401 |
| | 3. Number of Surveys Completed: | 18 |
| ? | 4. Indicate which of the following Landscape Elements are part of your survey: | |
| | a. Irrigation System Check | Yes ● No ○ |
| | b. Distribution Uniformity Analysis | Yes ● No ○ |
| | c. Review / Develop Irrigation Schedules | Yes ● No ○ |
| | d. Measure Landscape Area | Yes ○ No ● |
| | e. Measure Total Irrigable Area | Yes ○ No ● |
| | f. Provide Customer Report / Information | Yes ● No ○ |
| ? | 5. Do you track survey offers and results? | Yes ● |

| | | |
|---|---|---|
| | | No ○ |
| | 6. Does your agency provide follow-up surveys for previously completed surveys? | Yes ◉<br>No ○ |
| ? | a. If YES, describe below:<br>Follow up phone call to determine if recommendations have been implemented. | |

## C. Other BMP 5 Actions

| | | |
|---|---|---|
| ? | 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br>Does your agency provide mixed-use accounts with landscape budgets? | Yes ○<br>No ◉ |
| | 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| | 3. Do you offer landscape irrigation training? | Yes ○<br>No ◉ |
| ? | 4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below: | Yes ○<br>No ◉ |

| | Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|---|
| | a. Rebates | | | |
| | b. Loans | | | |
| | c. Grants | | | |

| | | |
|---|---|---|
| | 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | Yes ◉<br>No ○ |
| | a. If YES, describe below:<br>We provide a packet to all new customers. The packet includes landscape water use efficiency information. | |
| | 6. Do you have irrigated landscaping at your facilities? | Yes ◉<br>No ○ |
| | a. If yes, is it water-efficient? | Yes ○<br>No ◉ |
| | b. If yes, does it have dedicated irrigation metering? | Yes ○<br>No ◉ |
| ? | 7. Do you provide customer notices at the start of the irrigation season? | Yes ◉<br>No ○ |
| ? | 8. Do you provide customer notices at the end of the irrigation season? | Yes ◉<br>No ○ |

## D. Landscape Conservation Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ^ | | | |

| | | | |
|---|---|---|---|
| | 1. Budgeted Expenditures | 14000 | 14000 |
| ? | 2. Actual Expenditures | 11077 | |

## E. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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."

## F. Comments

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# BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

## A. Implementation

| | | |
|---|---|---|
| ? | 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | Yes ◉ No ○ |
| | a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | SMUD is offering $75-$125 rebate when customers purchase an energy efficient clothes washer. Customer must have electric hot water heater to be |
| | 2. Does your agency offer rebates for high-efficiency washers? | Yes ○ No ◉ |
| ? | 3. What is the level of the rebate? | 0 |
| | 4. Number of rebates awarded. | 0 |

## B. Rebate 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 ○ 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." | |

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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with water

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 ◉ No ○ | 400 |
| b. Public Service Announcement | Yes ◉ No ○ | 2 |
| c. Bill Inserts / Newsletters / Brochures | Yes ◉ No ○ | 2 |
| d. Bill showing water usage in comparison to previous year's usage | Yes ◉ No ○ | |
| e. Demonstration Gardens | Yes ◉ No ○ | 1 |
| f. Special Events, Media Events | Yes ◉ No ○ | 3 |
| g. Speaker's Bureau | Yes ○ No ◉ | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 2774 | 2876 |
| 2. Actual Expenditures | 44944 | |

### C. "At Least As Effective As"

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

The paid advertising spots were traffic spots with conservation messages on 16 radio stations in the Sacramento area purchased through RWEPAC. These spots

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## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ◉ No ○

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 ◉ No ○ | 7 | 182 | 0 |
| Grades 4th-6th | Yes ◉ No ○ | 3 | 78 | 0 |
| Grades 7th-8th | Yes ◉ No ○ | 4 | 104 | 0 |
| High School | Yes ○ No ◉ | 1 | 26 | 0 |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 2774 | 2876 |
| 2. Actual Expenditures | 8424 | |

### C. "At Least As Effective As"

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

SCWA sent letters and flyers to all teachers in our water service areas to encourage participation in the NIE program. It was very effective!

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## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency identified and ranked COMMERCIAL customers according to use? | Yes ○ No ◉ |
| ? | 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | Yes ○ No ◉ |
| ? | 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | Yes ○ No ◉ |

**Implement ONE or BOTH of the following TWO options:**
- Option A: CII Water Use Survey and Customer Incentives Program
- Option B: CII Conservation Program Targets

NOTE: If you choose to implement NEITHER of options A or B, please skip to section D and enter an explanation.

### ? Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | Yes ◉ No ○ |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 568 | 348 | 58 |
| b. Number of New Surveys Completed | 6 | 1 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 6 | 1 | 0 |

| ? CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| f. Evaluation of all water-using apparatus and processes | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |

| ? Agency CII Customer | Budget ($/Year) | No. Awarded to | Total $ Amount |
|---|---|---|---|

| | Incentives | | Customers | Awarded |
|---|---|---|---|---|
| | h. Rebates | 0 | 0 | 0 |
| | i. Loans | 0 | 0 | 0 |
| | j. Grants | 0 | 0 | 0 |
| | k. Others | 0 | 0 | 0 |

**Option B: CII Conservation Program Targets**

| | | |
|---|---|---|
| | 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | Yes ○ No ◉ |
| ? | 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | Yes ○ No ◉ |
| ? | 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| ? | 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

**B. Conservation Program Expenditures for CII Accounts**

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 14000 | 14000 |
| ? | 2. Actual Expenditures | 786.74 | |

**C. "At Least As Effective As"**

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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**

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# BMP 09a: CII ULFT Water Savings

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10.

Yes ○
No ◉

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

- Consumption ranking ☐
- Service area zones ☐
- Potential savings ☐
- Oldest meter ☐
- CII Sector or subsector ☐
- CII ULFT Study subsector targeting ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

- Direct letter ☐
- Bill insert ☐
- Bill message ☐
- Newsletter ☐
- Telephone ☐
- Web page ☐
- TV PSAs ☐
- TV paid announcements ☐
- Radio PSAs ☐
- Radio paid announcements ☐
- Newspapers ☐
- Trade publications ☐
- Other print media ☐
- Trade shows and events ☐
- Telemarketing ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

## B. Implementation

| | | |
|---|---|---|
| | 1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) | Yes ○ No ◉ |
| ◇ | 2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? | Yes ○ No ◉ |
| ◇ | 3. What is the total number of customer accounts participating in the program during the last year ? | 0 |

| ◇ | CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|---|
| | 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| | a. Offices | | | | |
| | b. Retail / Wholesale | | | | |
| | c. Hotels | | | | |
| | d. Health | | | | |
| | e. Industrial | | | | |
| | f. Schools: K to 12 | | | | |
| | g. Eating | | | | |
| | h. Government | | | | |
| | i. Churches | | | | |
| | j. Other | | | | |

| | | |
|---|---|---|
| | 5. Program design. | Rebate or voucher ☐<br>Direct installation ☐<br>Direct installation with customer co-payment ☐<br>Direct distribution ☐<br>Direct distribution with customer co-payment ☐<br>Retrofit on resale ☐<br>Regulated condition of service ☐ |
| | 6. Does your agency use outside services to implement this program? | Yes ○ No ◉ |
| | a. If yes, check all that apply. | Community Based Organization ☐<br>Consultant ☐<br>Plumbing contractors/subcontracts ☐ |
| | 7. Participant tracking and follow-up. | No follow-up ☐<br>Letter ☐<br>Telephone ☐<br>Site Visit ☐ |
| | 8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program. | |

| | |
|---|---|
| a. Disruption to business | |
| b. Inadequate payback | |
| c. Inadequate ULFT performance | |
| d. Lack of funding | |
| e. American's with Disabilities Act | |
| f. Permitting | |
| g. Other. Please describe in B. 9. | |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Worked on program development in 2002.
Program is scheduled to begin in 2003.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 3858 | 3077.35 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 3858 | 3077.35 |

2. CII ULFT Program: Annual Cost Sharing

| | | |
|---|---|---|
| a. Wholesale agency contribution | | 0 |

| | | | | |
|---|---|---|---|---|
| | | b. State agency contribution | | 0 |
| | | c. Federal agency contribution | | 0 |
| | | d. Other contribution | | 0 |
| | | e. Total | | 0 |

## D. Comments

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

## A. Implementation

| | | |
|---|---|---|
| | **Rate Structure Data Volumetric Rates for Water Service by Customer Class** | |
| | **1. Residential** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $1255241 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $3659285 |
| | **2. Commercial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $793306 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $51609 |
| | **3. Industrial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $136221 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $18402 |
| | **4. Institutional / Government** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $82663 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $8985 |
| | **5. Irrigation** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $292326 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **6. Other** | |
| | **a. Water Rate Structure** | |

| | | |
|---|---|---|
| | | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $549900 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1205864 |

## B. Conservation Pricing Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| | 1. Budgeted Expenditures | 64770 | 79770 |
| | 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 ○ 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

Rate study to be conducted by a consultant in 2003.

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## BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 65 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 3 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

### B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 265200 | 265200 |
| 2. Actual Expenditures | 35900 | |

### C. "At Least As Effective As"

| | |
|---|---|
| 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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

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## BMP 13: Water Waste Prohibition

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — Yes ◉ No ○

a. If YES, describe the ordinance:

The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or

2. Is a copy of the most current ordinance(s) on file with CUWCC? — Yes ◉ No ○

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Laguna Vineyard Country Creek Estates | 9150 Generations Dr. - water running off property 7706 Lineage |

### B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

| | |
|---|---|
| a. Gutter flooding | Yes ◉ No ○ |
| b. Single-pass cooling systems for new connections | Yes ○ No ◉ |
| c. Non-recirculating systems in all new conveyor or car wash systems | Yes ○ No ◉ |
| d. Non-recirculating systems in all new commercial laundry systems | Yes ○ No ◉ |
| e. Non-recirculating systems in all new decorative fountains | Yes ◉ No ○ |
| f. Other, please name: Odd-even watering schedule, no | Yes ◉ No ○ |

2. Describe measures that prohibit water uses listed above:

1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday.

### Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

| | | |
|---|---|---|
| | a. Allow the sale of more efficient, demand-initiated regenerating DIR models. | Yes ○ No ◉ |
| | b. Develop minimum appliance efficiency standards that: | |
| | i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. | Yes ○ No ◉ |
| | ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | Yes ○ No ◉ |
| | c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. | Yes ○ No ◉ |
| | 4. Does your agency include water softener checks in home water audit programs? | Yes ○ No ◉ |
| | 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | Yes ○ No ◉ |

## C. Water Waste Prohibition Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 30000 | 30000 |
| ? | 2. Actual Expenditures | 2666.67 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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." | |

## E. Comments

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## BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | 01/31/2003 | **2002** |

### A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | Yes ○ No ◉ | Yes ○ No ◉ |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 0 | 0 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **0** | **0** |

6. Describe your agency's ULFT program for single-family residences.

Developing program in 2002 to implement in 2003.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? Yes ○ No ◉

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

### B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 32250 | 64500 |
| 2. Actual Expenditures | 3077.35 | |

### C. "At Least As Effective As"

| | | |
|---|---|---|
| | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

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# BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

### Test for Condition 1

| | | Single-Family | Multi-Family |
|---|---|---|---|
| Latest Sacramento County Water Agency - Laguna / Vineyard to Implement Targeting/Marketing Program: | 1999 | | |
| Year Sacramento County Water Agency - Laguna / Vineyard Reported Implementing Targeting/Marketing Program: | | 2001 | 2001 |
| Sacramento County Water Agency - Laguna / Vineyard Met Targeting/Marketing Coverage Requirement: | | NO | NO |

### Test for Condition 2

| | | | Single-Family | Multi-Family |
|---|---|---|---|---|
| Latest Year Survey Program to Start: | 1998 | Residential Survey Offers (%) | 335.71% | 124800.00% |
| Reporting Period: | 01-02 | Survey Offers ≥ 20% | YES | YES |

### Test for Condition 3

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys through 2002 | 311 | 1 |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | | |
| Total + Credit | 311 | 1 |

| | | |
|---|---|---|
| Residential Accounts in Base Year | 14,983 | 2 |
| Sacramento County Water Agency - Laguna / Vineyard Survey Coverage as % of Base Year Residential Accounts | 2.08% | 50.00% |
| Coverage Requirement by Year 5 of Implementation per Exhibit 1 | 4.90% | 4.90% |
| Sacramento County Water Agency - Laguna / Vineyard on Schedule to Meet 10-Year Coverage Requirement | NO | YES |

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# BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

### Test for Condition 1

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation > 75%? | Reported Saturation | Saturation > 75%? |
| 1999 | 99-00 | 63.00% | NO | 100.00% | YES |
| 2000 | 99-00 | 65.00% | NO | 100.00% | YES |
| 2001 | 01-02 | 69.00% | NO | 98.00% | YES |
| 2002 | 01-02 | 73.00% | NO | 98.00% | YES |

### Test for Condition 2

| Report Year | Report Period | Sacramento County Water Agency - Laguna / Vineyard has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |

### Test for Condition 3

Reporting Period: 01-02

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 7,408 | 856 | 11.6% | YES |
| 1992 MF Accounts | Num. Showerheads Distributed to MF Accounts | Multi-Family Coverage Ratio | MF Coverage Ratio > 10% |

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# BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**



## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

### Test for Conditions 1 and 2

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |



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# BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

**Test for Compliance**

| | |
|---|---|
| Total Meter Retrofits Reported through 2002 | 780 |
| No. of Unmetered Accounts in Base Year | 14,989 |
| Meter Retrofit Coverage as % of Base Year Unmetered Accounts | 5.2% |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 24.0% |
| RU on Schedule to meet 10 Year Coverage Requirement | NO |



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# BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**



## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | 302 | | | NA |
| 2000 | 99-00 | 2 | 302 | | | NA |
| 2001 | 01-02 | 3 | 406 | | | NA |
| 2002 | 01-02 | 4 | 427 | 5 | 1.2% | No |

### Test for Condition 2a (survey offers)

| | |
|---|---|
| Select Reporting Period: | 01-02 |
| Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts | 361.6% |
| Survey Offers Equal or Exceed 20% Coverage Requirement | YES |

### Test for Condition 2a (surveys completed)

| | |
|---|---|
| Total Completed Landscape Surveys Reported through | 67 |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | 67 |
| CII Accounts in Base Year | 748 |
| RU Survey Coverage as a % of Base Year CII Accounts | 9.0% |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 3.6% |
| RU on Schedule to Meet 10 Year Coverage Requirement | YES |

### Test for Condition 2b (mixed use budget or meter retrofit program)

| Report Year | Report Period | BMP 5 Implementation Year | Agency has mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | NO | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 353 | |
| 2000 | 99-00 | 2 | 613 | |
| 2001 | 01-02 | 3 | 798 | |
| 2002 | 01-02 | 4 | 905 | |

## Test for Condition 3

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | | |
| 2000 | 99-00 | 2 | NO | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |



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# BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

### Test for Condition 1

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | YES | NO | |
| 2000 | 99-00 | 2 | YES | NO | |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | NO | |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | | NO |
| 2000 | 99-00 | 2 | | NO |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | | NO |



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# BMP 07 Coverage: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

### Test for Condition 1

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |



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# BMP 08 Coverage: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

### Test for Condition 1

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |



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# BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**



## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

### Test for Condition 1

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | NO | NO |
| 2000 | 99-00 | 2 | NO | NO | NO |
| 2001 | 01-02 | 3 | NO | NO | NO |
| 2002 | 01-02 | 4 | NO | NO | NO |

### Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|---|---|---|
| Total Completed Surveys Reported through 2002 | 32 | 1 | 9 |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | | | |
| Total + Credit | 32 | 1 | 9 |
| CII Accounts in Base Year | 129 | 245 | 9 |
| RU Survey Coverage as % of Base Year CII Accounts | 24.8% | 0.4% | 100.0% |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 2.4% | 2.4% | 2.4% |
| RU on Schedule to Meet 10 Year Coverage Requirement | YES | NO | YES |

### Test for Condition 2a

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 0.5% | NO |
| 2000 | 99-00 | 2 | 1.0% | NO |
| 2001 | 01-02 | 3 | 1.7% | NO |
| 2002 | 01-02 | 4 | 2.4% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | 42 |
| BMP 9 Survey Coverage | 11.0% |
| BMP 9 Performance Target Coverage | |
| BMP 9 Survey + Performance Target Coverage | 11.0% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | YES |



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# BMP 11 Coverage: Conservation Pricing

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

---

### Test for Condition 1

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |



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# BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

### Test for Compliance

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | YES | 4 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |



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# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

### Test for Condition 1

| Year | Report Period | RU has ordinance that meets coverage requirement |
|---|---|---|
| 1999 | 99-00 | YES |
| 2000 | 99-00 | YES |
| 2001 | 01-02 | YES |
| 2002 | 01-02 | NO |



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# Best Management Practices Report Filing

Sacramento County Water Agency

# Water Supply & Reuse – Laguna/Vineyard

240 Report Year 2003/2004

## Water Supply & Reuse

Reporting Unit: **Sacramento County Water Agency - Laguna / Vineyard**

Year: **2003**

### Water Supply Source Information

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| Andalusian | 227 | Groundwater |
| Equine | 388 | Groundwater |
| Calvine Meadows | 757 | Groundwater |
| Legends | 354 | Groundwater |
| Saddle Creek | 46 | Groundwater |
| Survey Road | 1 | Groundwater |
| Bruceville | 851 | Groundwater |
| Seasons | 504 | Groundwater |
| Banyon | 452 | Groundwater |
| Duck Slough | 530 | Groundwater |
| Kilconnell | 233 | Groundwater |
| Acropolis | 689 | Groundwater |
| Feather Creek | 445 | Groundwater |
| Wadena | 711 | Groundwater |
| Soaring Oaks | 829 | Groundwater |
| Big Horn South | 1153 | Groundwater |
| Big Horn Center | 616 | Groundwater |
| Big Horn North | 857 | Groundwater |
| Sheldon North | 269 | Groundwater |
| Lakeside Well | 437 | Groundwater |
| Dwight Road Raw | 560 | Groundwater |
| W. Stockton Bl. | 306 | Groundwater |
| Plant Well | 597 | Groundwater |
| Femoyer | .4 | Groundwater |
| Mather | 631 | Groundwater |
| Kurtz | 553 | Groundwater |
| Caymus | 325 | Groundwater |
| Westray | 492 | Groundwater |
| Waterman Road | 733 | Groundwater |
| Tillotson | 716 | Groundwater |
| Perry Ranch | 1135 | Groundwater |
| East Park | 1287 | Groundwater |
| Franklin Booster | 4040 | Imported |
| Mercantile Booster | 724 | Imported |
| SRCSD | 654 | Recycled |

**Total AF: 23102.4**

Reported as of 9/16/05

## Accounts & Water Use

| Reporting Unit Name: | Submitted to | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | CUWCC **03/29/2004** | **2003** |

### A. Service Area Population Information:

1. Total service area population 68335

### B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|---|---|---|---|---|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 12322 | 7196 | 18372 | 10729 |
| 2. Multi-Family | 115 | 267 | 0 | 0 |
| 3. Commercial | 601 | 1371 | 37 | 84 |
| 4. Industrial | 378 | 777 | 4 | 8 |
| 5. Institutional | 68 | 417 | 6 | 37 |
| 6. Dedicated Irrigation | 489 | 1336 | 0 | 0 |
| 7. Recycled Water | 126 | 683 | 0 | 0 |
| 8. Other | 0 | 0 | 80 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| **Total** | 14099 | 12047 | 18499 | 10858 |
| | **Metered** | | **Unmetered** | |

Reported as of 9/16/05

# BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

## A. Implementation

| | |
|---|---|
| 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is: | 12/09/1993 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |

## B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Number of surveys offered: | 30593 | 113 |
| 2. Number of surveys completed: | 484 | 0 |
| **Indoor Survey:** | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | yes |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | yes | yes |
| **Outdoor Survey:** | | |
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | yes |
| a. If yes, in what form are surveys tracked? | | database |

b. Describe how your agency tracks this information.

Access database

## C. Water Survey Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 59276.25 | 60000 |

2. Actual Expenditures 59594.89

## D. "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."

## E. Comments

Budget amount is for Arden Park Vista and Laguna/Vineyard.
Expenditures are for Laguna/Vineyard only.

Reported as of 9/16/05

# BMP 02: Residential Plumbing Retrofit

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — yes
3. Estimated percent of single-family households with low-flow showerheads: — 80%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — yes
5. Estimated percent of multi-family households with low-flow showerheads: — 98%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   Called all apartment complexes during the week of 11/18/2002. All complexes except one were built after 1992. The one complex that was built before 1992 was 90% retrofitted by them. For single family we have 7,408 pre 1992 homes and 23,286 post 1992 homes. We have provided retrofit kits to 1273 homes. That gives us 24,559/30,694 or 80%.

## B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 01/01/2002

   b. Describe your targeting/ marketing strategy.

   Door-to-door distribution to pre 1992 residences.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 1480 | 0 |
| 3. Number of toilet-displacement devices distributed: | 1480 | 0 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 2960 | 0 |

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Spreadsheet

   b. If yes, describe your tracking and distribution system :

   Keep records of customers that received retrofit kits in Excel spreadsheets. Distribute door-to-door to pre-1992 residences.

## C. Low-Flow Device Distribution Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 8476.7 | |

## D. "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."

## E. Comments

Budget for plumbing retrofits is included in the budget for BMP 1, therefore is $0 in this BMP.

Reported as of 9/16/05

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

## 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) | |
| b. Determine other system verifiable uses (AF) | |
| c. Determine total supply into the system (AF) | |
| 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? | yes |
| 6. Does your agency operate a system leak detection program? | yes |

a. If yes, describe the leak detection program:

Look for leaks in areas prone to them and repair leaks that are discovered.

## B. Survey Data

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 410 |
| 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 | 30000 |
| 2. Actual Expenditures | 241952.16 | |

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

## A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? — yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? — yes

   a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? — 11/01/1998

   b. Describe the program:

   Convert approximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 year move these customers to meter billing. Most commercial customers are meter billed.

3. Number of previously unmetered accounts fitted with meters during report year. — 740

## B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? — no

   a. If YES, when was the feasibility study conducted? (mm/dd/yy)

   b. Describe the feasibility study:

2. Number of CII accounts with mixed-use meters. — 1047

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. — 0

## C. Meter Retrofit Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 434400 | 434400 |
| 2. Actual Expenditures | 287433.85 | |

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:

| Sacramento County Water Agency - Laguna / Vineyard | BMP Form Status: 100% Complete | Year: 2003 |
|---|---|---|

## A. Water Use Budgets

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 615 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 11 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 101 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 169 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

## B. Landscape Surveys

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 01/01/2001 |

b. Description of marketing / targeting strategy:

All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park districts to offer surveys directly. Most schools in the Laguna area and many parks have been surveyed.

| | |
|---|---|
| 2. Number of Surveys Offered. | 1712 |
| 3. Number of Surveys Completed. | 5 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |

a. If YES, describe below:

Follow up phone call to determine if recommendations have been implemented.

## C. Other BMP 5 Actions

| | |
|---|---|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br><br>Does your agency provide mixed-use accounts with landscape budgets? | no |
| 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

| Type of Financial Incentive: | Budget Number Awarded | Total Amount |
|---|---|---|

| | (Dollars/ Year) | to Customers | Awarded |
|---|---|---|---|
| a. Rebates | | | |
| b. Loans | | | |
| c. Grants | | | |

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

We provide a packet to all new and change of account customers. The packet includes water use efficiency information.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? no

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 2078.95 | |

## E. "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."

## F. Comments

Water budget and use is not included for 2 of the budgets shown. Water usage information was not complete for 2003 calendar year. Budget is included in budget for BMP 1. Some of our facilities have water efficient landscape and some do not. Landscape irrigation training is offered through RWA.

Reported as of 9/16/05

# BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   SMUD - offering $75-$125 rebates determined by overall efficiency rating of Energy Star clothes washer - customer must have an electric hot water heater. PG&E - offers $25-$125 rebate on the purchase of an Energy Star clothes washer - water heater must be gas or have electricity provided by PG&E

2. Does your agency offer rebates for high-efficiency washers? no
3. What is the level of the rebate? 0
4. Number of rebates awarded. 0

## B. Rebate 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? 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

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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's organized.

   SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, and public outreach activities. Through participation in RWEPAC presented landscape workshops for homeowners, advertised water conservation through newspaper, radio, and television spots throughout the year.

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 | 182 |
| b. Public Service Announcement | yes | 13 |
| c. Bill Inserts / Newsletters / Brochures | yes | 4 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | yes | 0 |
| f. Special Events, Media Events | yes | 4 |
| g. Speaker's Bureau | no | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 75000 | 82500 |
| 2. Actual Expenditures | 126401.25 | |

## 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

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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 | 9 | 185 | 0 |
| Grades 4th-6th | yes | 1 | 20 | 0 |
| Grades 7th-8th | yes | 3 | 80 | 0 |
| High School | yes | 2 | 68 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1995

## B. School Education 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? 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

Budget for this BMP is included in budget for BMP 7.

Reported as of 9/16/05

# BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

## A. Implementation

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

## Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 640 | 384 | 74 |
| b. Number of New Surveys Completed | 0 | 0 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | yes | yes | yes |
| f. Evaluation of all water-using apparatus and processes | yes | yes | yes |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | yes | yes | yes |

| Agency CII Customer Incentives | Budget ($/Year) | No. Awarded to Customers | Total $ Amount Awarded |
|---|---|---|---|
| h. Rebates | 0 | 0 | 0 |
| i. Loans | 0 | 0 | 0 |
| j. Grants | 0 | 0 | 0 |
| k. Others | 1320 | 8 | 480 |

## Option B: CII Conservation Program Targets

| | |
|---|---|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | no |
| 6. Does your agency document and maintain records on how | no |

savings were realized and the method of calculation for estimated savings?

| | |
|---|---|
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 480 | |

## 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

Agency CII incentives involved participation in the Rinse and Save program. 8 nozzles were installed at 8 restaurants in the Laguna/Vineyard water service areas. Budget for CII surveys is included in the BMP 1 budget. We do follow up phone surveys, but this year had no inside surveys of businesses. We did some exterior surveys and phone survey followups.

Reported as of 9/16/05

# BMP 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

Consumption ranking
Potential savings
CII Sector or subsector

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We began our program at the end of the year and therefore do not know

2. How does your agency advertise this program? Check all that apply.

Direct letter
Bill insert
Telephone
Web page

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

The bill insert was the most effective so far. It went to a wider audience than the water purveyors participating in the program. This caused hard feelings with some customers.

## B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? — 0

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 0 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |
| g. Eating | 0 | 0 | 0 | 0 |
| h. Government | 0 | 0 | 0 | 0 |
| i. Churches | 0 | 0 | 0 | 0 |
| j. Other | 0 | 0 | 0 | 0 |

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? No

a. If yes, check all that apply.

7. Participant tracking and follow-up.

Telephone
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

| | |
|---|---|
| a. Disruption to business | 1 |
| b. Inadequate payback | 1 |
| c. Inadequate ULFT performance | 1 |
| d. Lack of funding | 1 |
| e. American's with Disabilities Act | 1 |
| f. Permitting | 1 |
| g. Other. Please describe in B. 9. | 1 |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

It is too early to tell.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

We just started in the middle of December,so it is too early to tell any of this.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | |
|---|---|
| a. Wholesale agency contribution | 0 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 0 |

## D. Comments

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2003** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

**1. Residential**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $1984042 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $3956737 |

**2. Commercial**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $919655 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $44901 |

**3. Industrial**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $164560 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $11095 |

**4. Institutional / Government**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $94000 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $7979 |

**5. Irrigation**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $480265 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

**6. Other**

| | |
|---|---|
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $873045 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

## B. Conservation Pricing Program Expenditures

| | This Year | Next Year |
|---|---|---|

| | | |
|---|---|---|
| 1. Budgeted Expenditures | 74885 | 70000 |
| 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? 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

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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? 75%
   - b. Coordinator's Name Gail Tauchus
   - c. Coordinator's Title Water Conservation Coordinator
   - d. Coordinator's Experience and Number of Years 4 years
   - e. Date Coordinator's position was created (mm/dd/yyyy) 07/01/1996
6. Number of conservation staff, including Conservation Coordinator. 2

## B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 265200 | 265200 |
| 2. Actual Expenditures | 81562.78 | |

## 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

Coordinator staff expenses includes coordinator specific labor and labor not given a specific task under conservation program.

Reported as of 9/16/05

# BMP 13: Water Waste Prohibition

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

a. If YES, describe the ordinance:

The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or improperly adjusted sprinklers or other distribution devices. Continued or repeated waste is sufficient cause to meter the customer's service.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| CCE Laguna Vineyard | 9900 Prairie Dunes Way 8980 Rocky Creek Court 9822 Gavirate Way 9317 Newfound Way 3519 Lakeland Way 9537 Kilcolgan Way 9275 Elberon Way 9595 Amon Ct 9344 Maybeck Wy 9025 Napa Valley Way 8165 Duncansby Court 8020 Montevina Drive 8033 Grinzing Way 8006 Haldeman Way 9400 Heathfield Court 8775 Mesa Brook Way 8750 Mesa Brook Way 9121 La Maison Circle |

## B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

a. Gutter flooding yes

b. Single-pass cooling systems for new connections yes

c. Non-recirculating systems in all new conveyor or car wash systems yes

d. Non-recirculating systems in all new commercial laundry systems no

e. Non-recirculating systems in all new decorative fountains yes

f. Other, please name
Odd-even watering schedule, no irrigation allowed between 12:00 noon and 6 p.m., use of water to clean sidewalks, driveways and patios, leaking pipes, fixtures, or sprinklers shall be repaired promptly, open hoses prohibited, and restaurants shall serve water only upon request. yes

2. Describe measures that prohibit water uses listed above:

1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday. 2) Irrigation prohibited 12 to 6 p.m. 3) No irrigation water runoff allowed. 4) Repair leaking pipes, fixtures, and sprinklers promptly. 5) No open hoses - shut-off nozzles required. 6) No use of water to clean driveways and sidewalks. 7) Restaurants only serve water upon request. 8) All swimming pools and fountains shall have recirculating pumps.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no

b. Develop minimum appliance efficiency standards that:

i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no

ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. no

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

## C. Water Waste Prohibition Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 30000 | 30000 |
| 2. Actual Expenditures | 10755.91 | |

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 14: Residential ULFT Replacement Programs

Reporting Unit: **Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status: **100% Complete**

Year: **2003**

## A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | yes | yes |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 5 | 0 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **5** | **0** |

6. Describe your agency's ULFT program for single-family residences.

SCWA is part of a regional program under the RWA. SCWA offers $75 per toilet for toilets that flush 2 gallons or greater. SRCSD will pay up to $50 for each eligible customer. They pay 33% of total cost for owner installed toilets and 25% of total cost for a paid install.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

## B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 59466 | 45000 |
| 2. Actual Expenditures | 19684.72 | |

## 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

All budget for ULFT programs is shown here. This includes CII and all service areas. This program started mid December 2003.

Reported as of 9/16/05

## Water Supply & Reuse

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Year:
**2004**

**Report Not Filed**

## Accounts & Water Use

| Reporting Unit Name: | Submitted to | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | CUWCC **02/22/2005** | **2004** |

### A. Service Area Population Information:

1. Total service area population 112695

### B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|---|---|---|---|---|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 17797 | 12236 | 16353 | 11243 |
| 2. Multi-Family | 132 | 361 | 0 | 0 |
| 3. Commercial | 704 | 1677 | 21 | 50 |
| 4. Industrial | 386 | 938 | 0 | 0 |
| 5. Institutional | 81 | 872 | 2 | 22 |
| 6. Dedicated Irrigation | 558 | 2200 | 0 | 0 |
| 7. Recycled Water | 131 | 803 | 0 | 0 |
| 8. Other | 0 | 0 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| **Total** | 19789 | 19087 | 16376 | 11315 |
| | **Metered** | | **Unmetered** | |

Reported as of 9/16/05

# BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Implementation

| | |
|---|---|
| 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is: | 12/09/1993 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |

## B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Number of surveys offered: | 34147 | 132 |
| 2. Number of surveys completed: | 408 | 0 |
| **Indoor Survey:** | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | yes |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | yes | yes |
| **Outdoor Survey:** | | |
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | yes |
| a. If yes, in what form are surveys tracked? | | database |

b. Describe how your agency tracks this information.

Access database

## C. Water Survey Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 60000 | 100500 |

2. Actual Expenditures 64722.5

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — yes
3. Estimated percent of single-family households with low-flow showerheads: — 84%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — yes
5. Estimated percent of multi-family households with low-flow showerheads: — 98%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   Called all apartment complexes during the week of 11/18/2002. All complexes except one were built after 1992. The one complex that was built before 1992 was 90% retrofitted by them. For single family we have 7,408 pre 1992 homes and 26,739 post 1992 homes. We have provided retrofit kits to 2049 homes. That gives us 28,788/34,147 or 84%.

## B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 01/01/2002

   b. Describe your targeting/ marketing strategy.

   Door-to-door distribution to pre 1992 residences. Advertised availability of kits in Water Spouts also.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 1549 | 0 |
| 3. Number of toilet-displacement devices distributed: | 1549 | 0 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 3098 | 0 |

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Database

   b. If yes, describe your tracking and distribution system :

   Keep records of customers that have received retrofit kits in an Access database. We distribute kits door-to-door.

## C. Low-Flow Device Distribution Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 9600 |
| 2. Actual Expenditures | 8070.04 | |

## D. "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."

## E. Comments

Budget for this year included in BMP 1.

Reported as of 9/16/05

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **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)
   - b. Determine other system verifiable uses (AF)
   - c. Determine total supply into the system (AF)
   - 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? — yes
6. Does your agency operate a system leak detection program? — yes
   - a. If yes, describe the leak detection program:

     Look for leaks in areas prone to them and repair leaks that are discovered. In 2005 we will complete a leak detection study as part of our water audit study. This will provide the basis for our leak detection program.

## B. Survey Data

1. Total number of miles of distribution system line. — 396
2. Number of miles of distribution system line surveyed. — 0

## C. System Audit / Leak Detection Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 19000 | 106720.5 |
| 2. Actual Expenditures | 149032.32 | |

## D. "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."

## E. Comments

We hired a consultant in late 2004 to develop a plan for system water audits in our water service areas. The consultant began working on the project in December 2004. Leak repair expenses were provided by our maintenance department. All leak repairs for all service areas are included on this report.

Reported as of 9/16/05

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? — yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? — yes

   a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? — 11/01/1998

   b. Describe the program:

   We are required to convert pproximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 year move these customers to meter billing. Most commercial customers are meter billed.

3. Number of previously unmetered accounts fitted with meters during report year. — 2158

## B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? — no

   a. If YES, when was the feasibility study conducted? (mm/dd/yy)

   b. Describe the feasibility study:

2. Number of CII accounts with mixed-use meters. — 605

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. — 0

## C. Meter Retrofit Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 434400 | 506200 |
| 2. Actual Expenditures | 373157.96 | |

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Water Use Budgets

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 689 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 45 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 182 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 325 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

## B. Landscape Surveys

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 01/01/2001 |

b. Description of marketing / targeting strategy:

All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park districts to offer surveys directly. Most schools in the Laguna area and many parks have been surveyed. We send letters to all customers with greater than 1 acre of landscape and our top 10% water users also.

| | |
|---|---|
| 2. Number of Surveys Offered. | 1860 |
| 3. Number of Surveys Completed. | 44 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |

a. If YES, describe below:

Follow up phone call to determine if recommendations have been implemented. This year we offered follow up field surveys for customers who had surveys over 4 years ago.

## C. Other BMP 5 Actions

| | |
|---|---|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br><br>Does your agency provide mixed-use accounts with landscape budgets? | no |
| 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| 3. Do you offer landscape irrigation training? | yes |

4. Does your agency offer financial incentives to improve landscape water use efficiency? no

| Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|
| a. Rebates | | | |
| b. Loans | | | |
| c. Grants | | | |

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

We provide a packet to all new and change of account customers. The packet includes water use efficiency information.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? no

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 8000 |
| 2. Actual Expenditures | 75575.84 | |

## E. "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."

## F. Comments

Water budget and use is only shown for 19 sites. The remainder of the sites had data for less than 1 year or problems with meters. Budget for this year is included in budget for BMP 1. Some of our facilities have water efficient landscape and some do not. Landscape irrigation training is offered through RWA.

Reported as of 9/16/05

# BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2004**

## A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   SMUD - offering $75-$125 rebates determined by overall efficiency rating of Energy Star clothes washer - customer must have an electric hot water heater. PG&E - offers $25-$125 rebate on the purchase of an Energy Star clothes washer - water heater must be gas or have electricity provided by PG&E

2. Does your agency offer rebates for high-efficiency washers? no
3. What is the level of the rebate? 0
4. Number of rebates awarded. 0

## B. Rebate Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 9675 |
| 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? 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

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

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's organized.

   SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, large landscape grant and public outreach activities. Through participation in RWEPAC presented landscape workshops for homeowners, advertised water conservation through newspaper, radio, and television spots throughout the year.

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 | 88 |
| b. Public Service Announcement | yes | 2 |
| c. Bill Inserts / Newsletters / Brochures | yes | 5 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | yes | 1 |
| f. Special Events, Media Events | yes | 6 |
| g. Speaker's Bureau | no | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 82500 | 128750 |
| 2. Actual Expenditures | 115926.41 | |

## 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

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

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 | 38 | 1220 | 0 |
| Grades 4th-6th | yes | 48 | 1908 | 0 |
| Grades 7th-8th | yes | 26 | 650 | 0 |
| High School | no | 3 | 75 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1995

## B. School Education Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 33000 |
| 2. Actual Expenditures | 20589.98 | |

## 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

Expenditures include SCWA labor only. Budget for 2004 is included in BMP 7. Budget for 2005 is separate and includes RWA dues.

Reported as of 9/16/05

# BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Implementation

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

### Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 725 | 386 | 83 |
| b. Number of New Surveys Completed | 12 | 4 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 12 | 1 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | yes | yes | yes |
| f. Evaluation of all water-using apparatus and processes | yes | yes | yes |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | yes | yes | yes |

| Agency CII Customer Incentives | Budget ($/Year) | No. Awarded to Customers | Total $ Amount Awarded |
|---|---|---|---|
| h. Rebates | 0 | 0 | 0 |
| i. Loans | 0 | 0 | 0 |
| j. Grants | 0 | 0 | 0 |
| k. Others | 1320 | 8 | 480 |

### Option B: CII Conservation Program Targets

| | |
|---|---|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | yes |

| | |
|---|---|
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | yes |
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 1.4 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 18500 |
| 2. Actual Expenditures | 20803.71 | |

## 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

Agency CII water savings were from spray nozzles installed by the Rinse and Save program in 2003. We are participating again this year, but had no nozzles installed in Z40. Budget for 2004 CII surveys is included in the BMP 1 budget. For 2005, we have a separate budget. We do follow up phone follow up surveys and began doing resurveys of some of our earliest customers. We did not do a phone follow up for 3 industrial customers because we have not received the reports for them yet.

Reported as of 9/16/05

# BMP 09a: CII ULFT Water Savings

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2004**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

Consumption ranking
Service area zones
Potential savings
Oldest meter
CII Sector or subsector
CII ULFT Study subsector targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We only got a total of 2 ULFT rebates, 1 in Zone 40, so I don't think anything we did was very effective. We targeted our older areas that would have the highest number of non ULFT's. We had a student go out this summer to inform customers of our programs. Some had already retrofitted toilets.

2. How does your agency advertise this program? Check all that apply.

Direct letter
Bill insert
Newsletter
Web page
Trade shows and events

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

The bill insert was the most effective so far. It went to a wider audience than the water purveyors participating in the program. This caused hard feelings with some customers. In 2005 we will send them out only to zip codes covered by participating water agencies.

## B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? — 1

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 1 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| g. Eating | 0 | 0 | 0 | 0 |
| h. Government | 0 | 0 | 0 | 0 |
| i. Churches | 0 | 0 | 0 | 0 |
| j. Other | 0 | 0 | 0 | 0 |

5. Program design. Rebate or voucher

6. Does your agency use outside services to implement this program? No

a. If yes, check all that apply.

7. Participant tracking and follow-up. No follow-up

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

| | |
|---|---|
| a. Disruption to business | 1 |
| b. Inadequate payback | 1 |
| c. Inadequate ULFT performance | 1 |
| d. Lack of funding | 1 |
| e. American's with Disabilities Act | 1 |
| f. Permitting | 1 |
| g. Other. Please describe in B. 9. | 1 |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

> I don't know why people did not participate in the program. I thought our door-to-door approach would work well, but it did not. We may have a very high percentage of toilets that have already been replaced and we are not aware of it.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

> We had a very slow start to our program. Our targeting and marketing approaches were not effective and we did not come near to meeting our goals. We plan to get help from a private company to go out and market to our customers and replace toilets. Other agencies have had success with this method.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 75 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 75 |

2. CII ULFT Program: Annual Cost Sharing

| | |
|---|---|
| a. Wholesale agency | 0 |

| | |
|---|---|
| contribution | |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 50 |
| e. Total | 50 |

## D. Comments

We participate in a regional ULFT program with RWA and the Sacramento Regional County Sanitation District (SRCSD). The SRCSD contribution is shown under other contribution.

Reported as of 9/16/05

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | **100% Complete** | **2004** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $2961851 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $4016819 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1169587 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $25327 |
| **3. Industrial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $173521 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $2618 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $144081 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $4021 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $672456 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $24086 |
| **6. Other** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1512816 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1568469 |

## B. Conservation Pricing Program Expenditures

| | This Year | Next Year |
|---|---|---|

| | | |
|---|---|---|
| 1. Budgeted Expenditures | 70000 | 65000 |
| 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? 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

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

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? 100%
   - b. Coordinator's Name Gail Tauchus
   - c. Coordinator's Title Water Conservation Coordinator
   - d. Coordinator's Experience and Number of Years 5 years
   - e. Date Coordinator's position was created (mm/dd/yyyy) 07/01/1996
6. Number of conservation staff, including Conservation Coordinator. 4

## B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 265200 | 251465.77 |
| 2. Actual Expenditures | 251465.77 | |

## 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

Coordinator staff expenses includes coordinator specific labor and labor not given a specific task under conservation program.

Reported as of 9/16/05

# BMP 13: Water Waste Prohibition

Reporting Unit:

| | | |
|---|---|---|
| **Sacramento County Water Agency - Laguna / Vineyard** | BMP Form Status: **100% Complete** | Year: **2004** |

## A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

   a. If YES, describe the ordinance:

   The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or improperly adjusted sprinklers or other distribution devices. Continued or repeated waste is sufficient cause to meter the customer's

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| CCE, Laguna, Mather, Vineyard | 7616 Polo Crosse Ave., 8085 Daisy Hill Drive, 8169 Trailing Vine Court, 8957 Forked Creek Way,8115 Village Brook Way, 5000 Cleveland Bay Way, 8729 Clay Glen Way, 4408 Mykonos Way, 9179 Ephraim Way, 7719 Killdeer Way,4257 Monhegan Way, 4420 Kingscote Way, 10901 Weathersfield, 4549 McRoberts Drive, 2108 Heger Way, 8150 Redford Way, 8262 Yorkton Way, 9100 Colonsay Way |

## B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding yes

   b. Single-pass cooling systems for new connections yes

   c. Non-recirculating systems in all new conveyor or car wash systems yes

   d. Non-recirculating systems in all new commercial laundry systems yes

   e. Non-recirculating systems in all new decorative fountains yes

   f. Other, please name
   Odd-even watering schedule, no irrigation allowed between 12:00 noon and 6 p.m., use of water to clean sidewalks, driveways and patios, leaking pipes, fixtures, or sprinklers shall be repaired promptly, open hoses prohibited, and restaurants shall serve water only upon request. yes

2. Describe measures that prohibit water uses listed above:

   1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday. 2) Irrigation prohibited 12 to 6 p.m. 3) No irrigation water runoff allowed. 4) Repair leaking pipes, fixtures, and sprinklers promptly. 5) No open hoses - shut-off nozzles required. 6) No use of water to clean driveways and sidewalks. 7) Restaurants only serve water upon request. 8) All swimming pools and fountains shall have recirculating pumps.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no

b. Develop minimum appliance efficiency standards that:

i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no

ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. no

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

## C. Water Waste Prohibition Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 30000 | 29200 |
| 2. Actual Expenditures | 19169.92 | |

## D. "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."

## E. Comments

Reported as of 9/16/05

# BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

BMP Form Status:
**100% Complete**

Year:
**2004**

## A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | yes | yes |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 42 | 0 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **42** | **0** |

6. Describe your agency's ULFT program for single-family residences.

SCWA is part of a regional program under the RWA. SCWA offers $75 per toilet for toilets that flush 2 gallons or greater. SRCSD will pay up to $50 for each eligible customer. They pay 33% of total cost for owner installed toilets and 25% of total cost for a paid install.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

## B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 45000 | 36900 |
| 2. Actual Expenditures | 10894.77 | |

## 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

All budget for ULFT programs for 2004 is shown here. This includes CII and all service areas. Budget for 2005 has money for CII ULFT program on the Laguna/Vineyard report. This includess CII rebates in all service areas.

Reported as of 9/16/05

# BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

---

**Test for Condition 1**

| | | Single-Family | Multi-Family |
|---|---|---|---|
| Sacramento County Water Agency - Laguna / Vineyard to Implement Targeting/Marketing Program by: | 1999 | | |
| Year Sacramento County Water Agency - Laguna / Vineyard Reported Implementing Targeting/Marketing Program: | | | |
| Sacramento County Water Agency - Laguna / Vineyard Met Targeting/Marketing Coverage Requirement: | | NO | NO |

---

**Test for Condition 2**

| | | | Single-Family | Multi-Family |
|---|---|---|---|---|
| Survey Program to Start by: | 1998 | Residential Survey Offers (%) | 432.09% | 12250.00% |
| Reporting Period: | 03-04 | Survey Offers ≥ 20% | YES | YES |

---

**Test for Condition 3**

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys 1999 - 2004: | 1,203 | 1 |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | | |
| Total + Credit | 1,203 | 1 |
| Residential Accounts in Base Year | 14,983 | 2 |

Sacramento County Water Agency - Laguna /

| | | |
|---|---|---|
| Vineyard Survey Coverage as % of Base Year Residential Accounts | 8.03% | 50.00% |
| Coverage Requirement by Year 7 of Implementation per Exhibit 1 | 7.90% | 7.90% |
| Sacramento County Water Agency - Laguna / Vineyard on Schedule to Meet 10-Year Coverage Requirement | YES | YES |

**BMP 1 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

---

## Test for Condition 1

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation > 75%? | Reported Saturation | Saturation > 75%? |
| 1999 | 99-00 | 63.00% | NO | 100.00% | YES |
| 2000 | 99-00 | 65.00% | NO | 100.00% | YES |
| 2001 | 01-02 | 69.00% | NO | 98.00% | YES |
| 2002 | 01-02 | 73.00% | NO | 98.00% | YES |
| 2003 | 03-04 | 80.00% | YES | 98.00% | YES |
| 2004 | 03-04 | 84.00% | YES | 98.00% | YES |

---

## Test for Condition 2

| Report Year | Report Period | Sacramento County Water Agency - Laguna / Vineyard has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

---

## Test for Condition 3

Reporting Period: 03-04

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 7,408 | 3,029 | 40.9% | YES |
| **1992 MF Accounts** | **Num. Showerheads Distributed to MF Accounts** | **Multi-Family Coverage Ratio** | **MF Coverage Ratio > 10%** |

---

**BMP 2 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

---

### Test for Conditions 1 and 2

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |
| 2003 | 03-04 | NO | | | NO |
| 2004 | 03-04 | NO | | | NO |

---

**BMP 3 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

**Test for Compliance**

| | |
|---|---|
| Total Meter Retrofits Reported through 2004 | 3,678 |
| No. of Unmetered Accounts in Base Year | 14,989 |
| Meter Retrofit Coverage as % of Base Year Unmetered Accounts | 24.5% |
| Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 42.0% |
| RU on Schedule to meet 10 Year Coverage Requirement | NO |

**BMP 4 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | 302 | | | NA |
| 2000 | 99-00 | 2 | 302 | | | NA |
| 2001 | 01-02 | 3 | 406 | | | NA |
| 2002 | 01-02 | 4 | 427 | 5 | 1.2% | No |
| 2003 | 03-04 | 5 | 615 | 11 | 1.8% | No |
| 2004 | 03-04 | 6 | 689 | 45 | 6.5% | No |

### Test for Condition 2a (survey offers)

| | |
|---|---|
| Select Reporting Period: | 03-04 |
| Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts | 932.6% |
| Survey Offers Equal or Exceed 20% Coverage Requirement | YES |

### Test for Condition 2a (surveys completed)

| | |
|---|---|
| Total Completed Landscape Surveys Reported through | 116 |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | 116 |
| CII Accounts in Base Year | 383 |
| RU Survey Coverage as a % of Base Year CII Accounts | 30.3% |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 6.3% |
| RU on Schedule to Meet 10 Year Coverage Requirement | YES |

### Test for Condition 2b (mixed use budget or meter retrofit program)

Agency has

| Report Year | Report Period | BMP 5 Implementation Year | mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | NO | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |
| 2003 | 03-04 | 5 | NO | |
| 2004 | 03-04 | 6 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 353 | |
| 2000 | 99-00 | 2 | 613 | |
| 2001 | 01-02 | 3 | 798 | |
| 2002 | 01-02 | 4 | 905 | |
| 2003 | 03-04 | 5 | 1,047 | |
| 2004 | 03-04 | 6 | 605 | |

**Test for Condition 3**

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | | |
| 2000 | 99-00 | 2 | NO | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |
| 2003 | 03-04 | 5 | NO | | |
| 2004 | 03-04 | 6 | NO | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |
| 2003 | 03-04 | | | | |
| 2004 | 03-04 | | | | |

**BMP 5 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

---

### Test for Condition 1

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | YES | NO | |
| 2000 | 99-00 | 2 | YES | NO | |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | NO | |
| 2003 | 03-04 | 5 | YES | NO | |
| 2004 | 03-04 | 6 | YES | NO | |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | | NO |
| 2000 | 99-00 | 2 | | NO |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | | NO |
| 2003 | 03-04 | 5 | | NO |
| 2004 | 03-04 | 6 | | NO |

---

**BMP 6 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 07 Coverage: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

---

### Test for Condition 1

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

---

**BMP 7 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 08 Coverage: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

---

### Test for Condition 1

---

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

---

**BMP 8 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

### Test for Condition 1

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | NO | NO |
| 2000 | 99-00 | 2 | NO | NO | NO |
| 2001 | 01-02 | 3 | NO | NO | NO |
| 2002 | 01-02 | 4 | NO | NO | NO |
| 2003 | 03-04 | 5 | YES | YES | YES |
| 2004 | 03-04 | 6 | YES | YES | YES |

### Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|---|---|---|
| Total Completed Surveys Reported through 2004 | 44 | 5 | 9 |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | | | |
| Total + Credit | 44 | 5 | 9 |
| CII Accounts in Base Year | 129 | 245 | 9 |
| RU Survey Coverage as % of Base Year CII Accounts | 34.1% | 2.0% | 100.0% |
| Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 4.2% | 4.2% | 4.2% |
| RU on Schedule to Meet 10 Year Coverage Requirement | YES | NO | YES |

### Test for Condition 2a

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | | | 0.5% | NO |
| 2000 | 99-00 | 2 | | | 1.0% | NO |

| | | | | | |
|---|---|---|---|---|---|
| 2001 01-02 | 3 | | | 1.7% | NO |
| 2002 01-02 | 4 | | | 2.4% | NO |
| 2003 03-04 | 5 | | | 3.3% | NO |
| 2004 03-04 | 6 | 1 | 0.1% | 4.2% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | 58 |
| BMP 9 Survey Coverage | 15.1% |
| BMP 9 Performance Target Coverage | 0.1% |
| BMP 9 Survey + Performance Target Coverage | 15.2% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | YES |

**BMP 9 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 11 Coverage: Conservation Pricing

Reporting Unit: **Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

---

### Test for Condition 1

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |
| 2003 | 03-04 | NO | YES |
| 2004 | 03-04 | NO | YES |

---

**BMP 11 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 12 Coverage: Conservation Coordinator

Reporting Unit: **Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

---

**Test for Compliance**

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | YES | 4 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |
| 2003 | 03-04 | YES | 2 |
| 2004 | 03-04 | YES | 4 |

---

**BMP 12 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
**Sacramento County Water Agency - Laguna / Vineyard**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

---

### Test for Condition 1

---

**Agency or service area prohibits:**

| Year | Gutter Flooding | Single-Pass Cooling Systems | Single-Pass Car Wash | Single-Pass Laundry | Single-Pass Fountains | Other | RU has ordinance that meets coverage requirement |
|---|---|---|---|---|---|---|---|
| 1999 | yes | yes | yes | yes | yes | no | YES |
| 2000 | yes | yes | yes | yes | yes | no | YES |
| 2001 | yes | yes | yes | yes | yes | yes | YES |
| 2002 | yes | no | no | no | yes | yes | NO |
| 2003 | yes | yes | yes | no | yes | yes | NO |
| 2004 | yes | yes | yes | yes | yes | yes | YES |

---

**BMP 13 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **Sacramento County Water Agency - Laguna / Vineyard**

## MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement.

An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

**Status: Water supplier has not met one or more coverage requirements for this BMP. as of 2004**

| Coverage Year | BMP 14 Data Submitted to CUWCC | Exemption Filed with CUWCC | ROR Ordinance in Effect | Exhibit 6 Coverage Req'mt (AF) | Toilet Replacement Program Water Savings* (AF) |
|---|---|---|---|---|---|
| 1998 | No | | | 15.53 | |
| 1999 | Yes | No | No | 44.63 | |
| 2000 | Yes | No | No | 85.52 | |
| 2001 | Yes | No | No | 136.62 | |
| 2002 | Yes | No | No | 196.49 | |
| 2003 | Yes | No | No | 263.85 | 0.13 |
| 2004 | Yes | No | No | 337.54 | 1.37 |
| 2005 | No | No | No | 416.52 | |
| 2006 | No | No | No | 499.89 | |
| 2007 | No | No | No | 586.80 | |

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

---

**BMP 14 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

# Best Management Practices Report Filing

Sacramento County Water Agency

# Water Supply & Reuse – Arden Park Vista

Non 240 Report Year 2001/2002

## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **2001** | 12/11/2002 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| North Market | 514 | Groundwater | Update | |
| Tolenas | 513 | Groundwater | Update | Delete |
| Firehouse | 129 | Groundwater | Update | Delete |
| Fitch Way | 7 | Groundwater | Update | Delete |
| Los Alamos | 92 | Groundwater | Update | Delete |
| Stewart | 992 | Groundwater | Update | Delete |
| Latham | 82 | Groundwater | Update | Delete |
| North Freeway | .1 | Groundwater | Update | Delete |
| 3rd Street | 39 | Groundwater | Update | Delete |
| Hood-Franklin I | .3 | Groundwater | Update | Delete |
| Bethel | 229 | Groundwater | Update | Delete |
| Northrup | 688 | Groundwater | Update | Delete |
| La Sierra | 1575 | Groundwater | Update | Delete |
| National Drive | 294 | Groundwater | Update | Delete |
| Arena | 290 | Groundwater | Update | Delete |

**Total AF: 5444.4**

### ADD Water Supply Sources:

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |



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Memorandum of Understanding

## Accounts & Water Use

| Reporting Unit Name: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **12/11/2002** | **2001** |

### A. Service Area Population Information:

| | |
|---|---|
| 1. Total service area population | 14889 |

### B. Number of Accounts and Water Deliveries (AF)

| | Type | Metered | | Unmetered | |
|---|---|---|---|---|---|
| | | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| | 1. Single-Family | 0 | 0 | 2842 | 1992 |
| | 2. Multi-Family | 0 | 0 | 30 | 57 |
| | 3. Commercial | 28 | 110 | 191 | 753 |
| | 4. Industrial | 7 | 24 | 98 | 335 |
| | 5. Institutional | 0 | 0 | 9 | 99 |
| | 6. Dedicated Irrigation | 15 | 88 | 3 | 18 |
| | 7. Recycled Water | 0 | 0 | 0 | 0 |
| | 8. Other | 0 | 0 | 22 | 0 |
| | 9. Unaccounted | NA | 0 | NA | 0 |
| | **Total** | 50 | 222 | 3195 | 3254 |
| | AF Conversion Calculator: | **Metered** | | **Unmetered** | |



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Memorandum of Understanding

## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is no later than: | 12/09/1993 |
| ? | 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |
| ? | 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |

### B. Water Survey Data

| Survey Counts | | Single Family Accounts | Multi-Family Units |
|---|---|---|---|
| | 1. Number of surveys offered: | 2842 | 1382 |
| | 2. Number of surveys completed: | 18 | 0 |
| **Indoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 3. Check for leaks, including toilets, faucets and meter checks | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| **Outdoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 6. Check irrigation system and timers | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 7. Review or develop customer irrigation schedule | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 8. Measure landscaped area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | 9. Measure total irrigable area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | | | |

| | | | |
|---|---|---|---|
| | 10. Which measurement method is typically used (Recommended but not required for surveys) | Image-Based ○<br>Measuring Tape ○<br>Odometer Wheel ○<br>Pacing ○<br>Other ○<br>None ◉ | |
| ? | 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | a. If yes, in what form are surveys tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ | |
| | b. Describe how your agency tracks this information. | Access database | |

## C. Water Survey Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 2566.9 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | Budgeted expenditures for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas |

## E. Comments

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## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/11/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? | Yes ○ No ◉ |
| ? | a. If YES, list local jurisdictions in your service area and code or ordinance in each: | |
| ? | 2. Has your agency satisfied the 75% saturation requirement for single-family housing units? | Yes ○ No ◉ |
| ? | 3. Estimated percent of single-family households with low-flow showerheads: | 10 % |
| ? | 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? | Yes ○ No ◉ |
| ? | 5. Estimated percent of multi-family households with low-flow showerheads: | 60 % |
| | 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research. | |

### B. Low-Flow Device Distribution Information

| | | |
|---|---|---|
| ? | 1. Has your agency developed a targeting/ marketing for distributing low-flow devices? | Yes ○ No ◉ |
| | a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy) | |
| | b. Describe your targeting/ marketing strategy. | |

| ? | Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|---|
| | 2. Number of low-flow showerheads distributed: | 2 | 0 |
| | 3. Number of toilet-displacement devices distributed: | 3 | 0 |
| | 4. Number of toilet flappers distributed: | 0 | 0 |
| | 5. Number of faucet aerators distributed: | 5 | 0 |
| ? | 6. Does your agency track the distribution and cost of low- | | Yes ◉ |

| | | |
|---|---|---|
| | flow devices? | No ○ |
| | a. If YES, in what format are low-flow devices tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ |
| | b. If yes, describe your tracking and distribution system : | Access database |

## C. Low-Flow Device Distribution Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 10.5 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

## E. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ◉ |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ◉ |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ◉ |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ○ No ◉ |
| | 6. Does your agency operate a system leak detection program? | Yes ◉ No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 74 |
| | 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 | 49849.29 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

## E. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas

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## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| | 1. Does your agency require meters for all new connections and bill by volume-of-use? | Yes ◉ No ○ |
| ? | 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | Yes ◉ No ○ |
| | a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? (Year must be four digit mm/dd/yyyy) | 11/01/1998 |
| | b. Describe the program: Convert approximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 | |
| ? | 3. Number of previously unmetered accounts fitted with meters during report year: | 0 |

### B. Feasibility Study

| | | |
|---|---|---|
| ? | 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | Yes ○ No ◉ |
| | a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| | b. Describe the feasibility study: | |
| ? | 2. Number of CII accounts with mixed-use meters: | 35 |
| ? | 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period | 0 |

### C. Meter Retrofit 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 ○ 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." | |

## E. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas

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# BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

## A. Water Use Budgets

| | | |
|---|---|---|
| | 1. Number of Dedicated Irrigation Meter Accounts: | 15 |
| ? | 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| ? | 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| ? | 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| | 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | Yes ○ No ◉ |

## B. Landscape Surveys

| | | |
|---|---|---|
| ? | 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | Yes ◉ No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy) | 01/01/2001 |
| | b. Description of marketing / targeting strategy: All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with | |
| | 2. Number of Surveys Offered: | 351 |
| | 3. Number of Surveys Completed: | 0 |
| ? | 4. Indicate which of the following Landscape Elements are part of your survey: | |
| | a. Irrigation System Check | Yes ◉ No ○ |
| | b. Distribution Uniformity Analysis | Yes ◉ No ○ |
| | c. Review / Develop Irrigation Schedules | Yes ◉ No ○ |
| | d. Measure Landscape Area | Yes ○ No ◉ |
| | e. Measure Total Irrigable Area | Yes ○ No ◉ |
| | f. Provide Customer Report / Information | Yes ◉ No ○ |
| ? | 5. Do you track survey offers and results? | Yes ◉ |

| | | |
|---|---|---|
| | | No ○ |
| | 6. Does your agency provide follow-up surveys for previously completed surveys? | Yes ◉<br>No ○ |
| ? | a. If YES, describe below:<br>Follow up phone call to determine if recommendations have been implemented. | |

## C. Other BMP 5 Actions

| | | |
|---|---|---|
| ? | 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br>Does your agency provide mixed-use accounts with landscape budgets? | Yes ○<br>No ◉ |
| | 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| | 3. Do you offer landscape irrigation training? | Yes ○<br>No ◉ |
| ? | 4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below: | Yes ○<br>No ◉ |

| | Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|---|
| | a. Rebates | | | |
| | b. Loans | | | |
| | c. Grants | | | |

| | | |
|---|---|---|
| | 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | Yes ○<br>No ◉ |
| | a. If YES, describe below: | |
| | 6. Do you have irrigated landscaping at your facilities? | Yes ◉<br>No ○ |
| | a. If yes, is it water-efficient? | Yes ○<br>No ◉ |
| | b. If yes, does it have dedicated irrigation metering? | Yes ○<br>No ◉ |
| ? | 7. Do you provide customer notices at the start of the irrigation season? | Yes ◉<br>No ○ |
| ? | 8. Do you provide customer notices at the end of the irrigation season? | Yes ◉<br>No ○ |

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|

| | | | |
|---|---|---|---|
| | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 0 | |

## E. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

## F. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas

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# BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

## A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — Yes ◉ No ○

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   SMUD is offering $75-$125 rebate when customers purchase an energy efficient clothes washer. Customer must have electric hot water heater

2. Does your agency offer rebates for high-efficiency washers? — Yes ○ No ◉

3. What is the level of the rebate? — 0

4. Number of rebates awarded. — 0

## B. Rebate 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 ○ 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

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with

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 ◉ No ○ | 13 |
| b. Public Service Announcement | Yes ◉ No ○ | 12 |
| c. Bill Inserts / Newsletters / Brochures | Yes ◉ No ○ | 2 |
| d. Bill showing water usage in comparison to previous year's usage | Yes ◉ No ○ | |
| e. Demonstration Gardens | Yes ◉ No ○ | 0 |
| f. Special Events, Media Events | Yes ◉ No ○ | 7 |
| g. Speaker's Bureau | Yes ○ No ◉ | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information 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 ○ 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

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ◉ No ○

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 ◉ No ○ | 0 | 0 | 0 |
| Grades 4th-6th | Yes ◉ No ○ | 0 | 0 | 0 |
| Grades 7th-8th | Yes ◉ No ○ | 0 | 0 | 0 |
| High School | Yes ○ No ◉ | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education 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 ○ 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

Sac Bee's newspapers in education program is available to all teachers. No teachers in the APV area utilized the program this year. Budgeted

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## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | | Yes ○ No ● |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | | Yes ○ No ● |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | | Yes ○ No ● |

**Implement ONE or BOTH of the following TWO options:**
- Option A: CII Water Use Survey and Customer Incentives Program
- Option B: CII Conservation Program Targets

NOTE: If you choose to implement NEITHER of options A or B, please skip to section D and enter an explanation.

### Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | Yes ● No ○ |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 219 | 105 | 9 |
| b. Number of New Surveys Completed | 0 | 0 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | Yes ● No ○ | Yes ● No ○ | Yes ● No ○ |
| f. Evaluation of all water-using apparatus and processes | Yes ● No ○ | Yes ● No ○ | Yes ● No ○ |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | Yes ● No ○ | Yes ● No ○ | Yes ● No ○ |

| Agency CII Customer | Budget ($/Year) | No. Awarded to | Total $ Amount |
|---|---|---|---|

| | Incentives | | Customers | Awarded |
|---|---|---|---|---|
| | h. Rebates | 0 | 0 | 0 |
| | i. Loans | 0 | 0 | 0 |
| | j. Grants | 0 | 0 | 0 |
| | k. Others | 0 | 0 | 0 |

## Option B: CII Conservation Program Targets

| | | |
|---|---|---|
| | 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | Yes ○ No ◉ |
| ? | 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | Yes ○ No ◉ |
| ? | 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| ? | 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | | 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 ○ 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

Surveys were offered to all customers twice this year. No customers in the APV and non Zone 40 areas participated.

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# BMP 09a: CII ULFT Water Savings

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10.

- Yes ○
- No ◉

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

- Consumption ranking ☐
- Service area zones ☐
- Potential savings ☐
- Oldest meter ☐
- CII Sector or subsector ☐
- CII ULFT Study subsector targeting ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

- Direct letter ☐
- Bill insert ☐
- Bill message ☐
- Newsletter ☐
- Telephone ☐
- Web page ☐
- TV PSAs ☐
- TV paid announcements ☐
- Radio PSAs ☐
- Radio paid announcements ☐
- Newspapers ☐
- Trade publications ☐
- Other print media ☐
- Trade shows and events ☐
- Telemarketing ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

## B. Implementation

| | | |
|---|---|---|
| | 1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) | Yes ○ No ◉ |
| ? | 2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? | Yes ○ No ◉ |
| ? | 3. What is the total number of customer accounts participating in the program during the last year ? | 0 |

| ? | CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|---|
| | 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| | a. Offices | | | | |
| | b. Retail / Wholesale | | | | |
| | c. Hotels | | | | |
| | d. Health | | | | |
| | e. Industrial | | | | |
| | f. Schools: K to 12 | | | | |
| | g. Eating | | | | |
| | h. Government | | | | |
| | i. Churches | | | | |
| | j. Other | | | | |

| | | |
|---|---|---|
| | 5. Program design. | Rebate or voucher ☐<br>Direct installation ☐<br>Direct installation with customer co-payment ☐<br>Direct distribution ☐<br>Direct distribution with customer co-payment ☐<br>Retrofit on resale ☐<br>Regulated condition of service ☐ |
| | 6. Does your agency use outside services to implement this program? | Yes ○ No ◉ |
| | a. If yes, check all that apply. | Community Based Organization ☐<br>Consultant ☐<br>Plumbing contractors/subcontracts ☐ |
| | 7. Participant tracking and follow-up. | No follow-up ☐<br>Letter ☐<br>Telephone ☐<br>Site Visit ☐ |
| | 8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program. | |

| | |
|---|---|
| a. Disruption to business | |
| b. Inadequate payback | |
| c. Inadequate ULFT performance | |
| d. Lack of funding | |
| e. American's with Disabilities Act | |
| f. Permitting | |
| g. Other. Please describe in B. 9. | |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

N/A - haven't started program yet.
Program will start in 2003.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

N/A - haven't started program yet.
Program will start in 2003.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | | |
|---|---|---|
| a. Wholesale agency contribution | | 0 |

| | | | | |
|---|---|---|---|---|
| | | b. State agency contribution | | 0 |
| | | c. Federal agency contribution | | 0 |
| | | d. Other contribution | | 0 |
| | | e. Total | | 0 |

## D. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/11/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| | **Rate Structure Data Volumetric Rates for Water Service by Customer Class** | |
| | **1. Residential** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $852236 |
| | **2. Commercial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $31140 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $149157 |
| | **3. Industrial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $20796 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $166276 |
| | **4. Institutional / Government** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $10401 |
| | **5. Irrigation** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $6126 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $3984 |
| | **6. Other** | |
| | **a. Water Rate Structure** | Uniform |

| | | |
|---|---|---|
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $4344 |

## 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 ○ 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

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## BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 60 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 2 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

### B. Conservation Staff 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 ○ 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

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 13: Water Waste Prohibition

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — Yes ◉ No ○

a. If YES, describe the ordinance:

The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow

2. Is a copy of the most current ordinance(s) on file with CUWCC? — Yes ◉ No ○

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Arden Park Vista | 3500 Bodega Court - water running off the property 3340 Fair |

### B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

| | |
|---|---|
| a. Gutter flooding | Yes ◉ No ○ |
| b. Single-pass cooling systems for new connections | Yes ◉ No ○ |
| c. Non-recirculating systems in all new conveyor or car wash systems | Yes ◉ No ○ |
| d. Non-recirculating systems in all new commercial laundry systems | Yes ◉ No ○ |
| e. Non-recirculating systems in all new decorative fountains | Yes ◉ No ○ |
| f. Other, please name: Odd-even watering schedule, no | Yes ◉ No ○ |

2. Describe measures that prohibit water uses listed above:

1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday.

### Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

| | | |
|---|---|---|
| | a. Allow the sale of more efficient, demand-initiated regenerating DIR models. | Yes ○ No ◉ |
| | b. Develop minimum appliance efficiency standards that: | |
| | i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. | Yes ○ No ◉ |
| | ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | Yes ○ No ◉ |
| | c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. | Yes ○ No ◉ |
| | 4. Does your agency include water softener checks in home water audit programs? | Yes ○ No ◉ |
| | 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | Yes ○ No ◉ |

## C. Water Waste Prohibition 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 ○ 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." | |

## E. Comments

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 12/05/2002 | **2001** |

### A. Implementation

| | | Single-Family Accounts | Multi-Family Units |
|---|---|---|---|
| | 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | Yes ○ No ◉ | Yes ○ No ◉ |

**Number of Toilets Replaced by Agency Program During Report Year**

| | Replacement Method | SF Accounts | MF Units |
|---|---|---|---|
| | 2. Rebate | 0 | 0 |
| | 3. Direct Install | 0 | 0 |
| | 4. CBO Distribution | 0 | 0 |
| | 5. Other | 0 | 0 |
| | **Total** | **0** | **0** |

6. Describe your agency's ULFT program for single-family residences.

N/A

7. Describe your agency's ULFT program for multi-family residences.

N/A

8. Is a toilet retrofit on resale ordinance in effect for your service area? Yes ○ No ◉

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

### B. Residential ULFT 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 ○<br>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

Program will start in 2003. Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **2002** | 01/31/2003 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| North Market | 418 | Groundwater | Update | |
| Tolenas | 421 | Groundwater | Update | Delete |
| Firehouse | 251 | Groundwater | Update | Delete |
| Fitch Way | 3 | Groundwater | Update | Delete |
| Los Alamos | 355 | Groundwater | Update | Delete |
| Stewart | 829 | Groundwater | Update | Delete |
| Latham | 186 | Groundwater | Update | Delete |
| North Freeway | 1 | Groundwater | Update | Delete |
| 3rd Street | 93 | Groundwater | Update | Delete |
| Hood-Franklin I | .4 | Groundwater | Update | Delete |
| Bethel | 207 | Groundwater | Update | Delete |
| Northrup | 521 | Groundwater | Update | Delete |
| La Sierra | 1503 | Groundwater | Update | Delete |
| National Drive | 270 | Groundwater | Update | Delete |
| Arena | 314 | Groundwater | Update | Delete |

**Total AF: 5372.4**

### ADD Water Supply Sources:

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |

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## Accounts & Water Use

| Reporting Unit Name: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **01/31/2003** | **2002** |

### A. Service Area Population Information:

| | |
|---|---|
| 1. Total service area population | 14889 |

### B. Number of Accounts and Water Deliveries (AF)

| | Type | Metered | | Unmetered | |
|---|---|---|---|---|---|
| | | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| | 1. Single-Family | 1 | 0 | 2916 | 2012 |
| | 2. Multi-Family | 0 | 0 | 37 | 86 |
| | 3. Commercial | 33 | 127 | 240 | 924 |
| | 4. Industrial | 10 | 37 | 97 | 356 |
| | 5. Institutional | 0 | 0 | 10 | 94 |
| | 6. Dedicated Irrigation | 21 | 173 | 4 | 33 |
| | 7. Recycled Water | 0 | 0 | 0 | 0 |
| | 8. Other | 0 | 0 | 34 | 0 |
| | 9. Unaccounted | NA | 0 | NA | 0 |
| | **Total** | 65 | 337 | 3338 | 3505 |
| | AF Conversion Calculator: | **Metered** | | **Unmetered** | |



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## BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is no later than: | 12/09/1993 |
| ? | 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |
| ? | 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | Yes ◉ No ○ |
| | a. If YES, when was it implemented? (Enter 4-digit year mm/dd/yyyy) | 01/01/2001 |

### B. Water Survey Data

| Survey Counts | | Single Family Accounts | Multi-Family Units |
|---|---|---|---|
| | 1. Number of surveys offered: | 2917 | 868 |
| | 2. Number of surveys completed: | 14 | 0 |
| **Indoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 3. Check for leaks, including toilets, faucets and meter checks | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | Yes ◉ No ○ | Yes ◉ No ○ |
| **Outdoor Survey:** | | **SF Accounts** | **MF Units** |
| ? | 6. Check irrigation system and timers | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 7. Review or develop customer irrigation schedule | Yes ◉ No ○ | Yes ◉ No ○ |
| ? | 8. Measure landscaped area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | 9. Measure total irrigable area (Recommended but not required for surveys) | Yes ○ No ◉ | Yes ○ No ◉ |
| ? | | | |

| | | | |
|---|---|---|---|
| | 10. Which measurement method is typically used (Recommended but not required for surveys) | Image-Based ○<br>Measuring Tape ○<br>Odometer Wheel ○<br>Pacing ○<br>Other ○<br>None ◉ | |
| ? | 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | Yes ◉<br>No ○ | Yes ◉<br>No ○ |
| ? | a. If yes, in what form are surveys tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ | |
| | b. Describe how your agency tracks this information. | Access database | |

## C. Water Survey Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 1856.88 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

## E. Comments

Budget for all service areas are on the Laguna/Vineyard report. Expenditures are for the Arden Park Vista and non Zone 40 service areas only.

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## BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? | Yes ○ No ◉ |
| ? | a. If YES, list local jurisdictions in your service area and code or ordinance in each: | |
| ? | 2. Has your agency satisfied the 75% saturation requirement for single-family housing units? | Yes ○ No ◉ |
| ? | 3. Estimated percent of single-family households with low-flow showerheads: | 20 % |
| ? | 4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? | Yes ○ No ◉ |
| ? | 5. Estimated percent of multi-family households with low-flow showerheads: | 60 % |
| | 6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research. | |

### B. Low-Flow Device Distribution Information

| | | |
|---|---|---|
| ? | 1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? | Yes ◉ No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Use four-digit year, mm/dd/yyyy) | 01/01/2002 |
| | b. Describe your targeting/ marketing strategy. | Door-to-door distribution to pre-1992 residences. |

| | Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|---|
| | 2. Number of low-flow showerheads distributed: | 812 | 0 |
| | 3. Number of toilet-displacement devices distributed: | 406 | 0 |
| | 4. Number of toilet flappers distributed: | 0 | 0 |
| | 5. Number of faucet aerators distributed: | 1624 | 0 |
| ? | 6. Does your agency track the distribution and cost of low-flow devices? | | Yes ◉ |

| | | |
|---|---|---|
| | | No ○ |
| | a. If YES, in what format are low-flow devices tracked? | Database ◉<br>Spreadsheet ○<br>Manual Activity ○<br>None ○ |
| | b. If yes, describe your tracking and distribution system : Access database | |

## C. Low-Flow Device Distribution Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 3886.78 | |

## D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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." | |

## E. Comments

Budget for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas only.

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ◉ |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ◉ |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ◉ |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ◉ No ○ |
| | 6. Does your agency operate a system leak detection program? | Yes ◉ No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 74 |
| | 2. Number of miles of distribution system line surveyed: | 0 |

### C. System Audit / Leak Detection Program Expenditures

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 52341 | 54960 |
| ? | 2. Actual Expenditures | 52341 | |

### D. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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."

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## BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| | 1. Does your agency require meters for all new connections and bill by volume-of-use? | Yes ◉ No ○ |
| ? | 2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? | Yes ◉ No ○ |
| | a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? (Year must be four digit mm/dd/yyyy) | 11/01/1998 |
| | b. Describe the program: | Convert approximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 |
| ? | 3. Number of previously unmetered accounts fitted with meters during report year: | 0 |

### B. Feasibility Study

| | | |
|---|---|---|
| ? | 1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | Yes ○ No ◉ |
| | a. If YES, when was the feasibility study conducted? (mm/dd/yy) | |
| | b. Describe the feasibility study: | |
| ? | 2. Number of CII accounts with mixed-use meters: | 43 |
| ? | 3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period | 0 |

### C. Meter Retrofit 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 ○ 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." | |

## E. Comments

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# BMP 05: Large Landscape Conservation Programs and Incentives

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

## A. Water Use Budgets

| | | |
|---|---|---|
| | 1. Number of Dedicated Irrigation Meter Accounts: | 21 |
| ? | 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| ? | 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| ? | 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| | 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | Yes ○ No ◉ |

## B. Landscape Surveys

| | | |
|---|---|---|
| ? | 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | Yes ◉ No ○ |
| | a. If YES, when did your agency begin implementing this strategy? (Year must be four digit mm/dd/yyyy) | 01/01/2001 |
| | b. Description of marketing / targeting strategy: All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park | |
| | 2. Number of Surveys Offered: | 415 |
| | 3. Number of Surveys Completed: | 1 |
| ? | 4. Indicate which of the following Landscape Elements are part of your survey: | |
| | a. Irrigation System Check | Yes ◉ No ○ |
| | b. Distribution Uniformity Analysis | Yes ◉ No ○ |
| | c. Review / Develop Irrigation Schedules | Yes ◉ No ○ |
| | d. Measure Landscape Area | Yes ○ No ◉ |
| | e. Measure Total Irrigable Area | Yes ○ No ◉ |
| | f. Provide Customer Report / Information | Yes ◉ No ○ |
| ? | 5. Do you track survey offers and results? | Yes ◉ |

| | | |
|---|---|---|
| | | No ○ |
| | 6. Does your agency provide follow-up surveys for previously completed surveys? | Yes ◉<br>No ○ |
| ? | a. If YES, describe below:<br>Follow up phone call to determine if recommendations have been implemented. | |

## C. Other BMP 5 Actions

| | | |
|---|---|---|
| ? | 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br>Does your agency provide mixed-use accounts with landscape budgets? | Yes ○<br>No ◉ |
| | 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| | 3. Do you offer landscape irrigation training? | Yes ○<br>No ◉ |
| ? | 4. Does your agency offer financial incentives to improve landscape water use efficiency? If YES, describe below: | Yes ○<br>No ◉ |

| | Type of Financial Incentive: | Budget (Dollars/ Year) | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|---|
| | a. Rebates | 0 | 0 | 0 |
| | b. Loans | 0 | 0 | 0 |
| | c. Grants | 0 | 0 | 0 |

| | | |
|---|---|---|
| | 5. Do you provide landscape water use efficiency information to new customers and customers changing services? | Yes ◉<br>No ○ |
| | a. If YES, describe below:<br>We provide a packet to all new customers. The packet includes landscape water use efficiency information. | |
| | 6. Do you have irrigated landscaping at your facilities? | Yes ◉<br>No ○ |
| | a. If yes, is it water-efficient? | Yes ○<br>No ◉ |
| | b. If yes, does it have dedicated irrigation metering? | Yes ○<br>No ◉ |
| ? | 7. Do you provide customer notices at the start of the irrigation season? | Yes ◉<br>No ○ |
| ? | 8. Do you provide customer notices at the end of the irrigation season? | Yes ◉<br>No ○ |

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|

| | | | |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 188.12 | |

## E. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○<br>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."

## F. Comments

Budget for all service areas are on the Laguna/Vineyard report. Expenditures are for Arden Park and non Zone 40 service areas only.

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# BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

## A. Implementation

| | | |
|---|---|---|
| ? | 1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? | Yes ◉ No ○ |
| | a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is. | SMUD is offering $75-$125 rebate when customers purchase an energy efficient clothes washer. Customer must have electric hot water heater to be |
| | 2. Does your agency offer rebates for high-efficiency washers? | Yes ○ No ◉ |
| ? | 3. What is the level of the rebate? | 0 |
| | 4. Number of rebates awarded. | 0 |

## B. Rebate 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 ○ 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

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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with water

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 ◉ No ○ | 400 |
| b. Public Service Announcement | Yes ◉ No ○ | 2 |
| c. Bill Inserts / Newsletters / Brochures | Yes ◉ No ○ | 2 |
| d. Bill showing water usage in comparison to previous year's usage | Yes ◉ No ○ | |
| e. Demonstration Gardens | Yes ◉ No ○ | 0 |
| f. Special Events, Media Events | Yes ◉ No ○ | 3 |
| g. Speaker's Bureau | Yes ○ No ◉ | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information 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 ○ 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

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## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ◉ No ○

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 ◉ No ○ | 1 | 26 | 0 |
| Grades 4th-6th | Yes ◉ No ○ | 1 | 26 | 0 |
| Grades 7th-8th | Yes ○ No ◉ | 0 | 0 | 0 |
| High School | Yes ○ No ◉ | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education 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 ○ 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

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## BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency identified and ranked COMMERCIAL customers according to use? | Yes ○ No ◉ |
| ? | 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | Yes ○ No ◉ |
| ? | 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | Yes ○ No ◉ |

**Implement ONE or BOTH of the following TWO options:**
- Option A: CII Water Use Survey and Customer Incentives Program
- Option B: CII Conservation Program Targets

NOTE: If you choose to implement NEITHER of options A or B, please skip to section D and enter an explanation.

? **Option A: CII Water Use Survey and Customer Incentives Program**

| | | |
|---|---|---|
| | 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | Yes ◉ No ○ |

| | CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|---|
| | a. Number of New Surveys Offered | 273 | 107 | 10 |
| | b. Number of New Surveys Completed | 1 | 0 | 0 |
| | c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| | d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |

| ? | CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|---|
| | e. Site Visit | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| | f. Evaluation of all water-using apparatus and processes | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |
| | g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | Yes ◉ No ○ | Yes ◉ No ○ | Yes ◉ No ○ |

| ? | Agency CII Customer | Budget ($/Year) | No. Awarded to | Total $ Amount |
|---|---|---|---|---|

| | Incentives | | Customers | Awarded |
|---|---|---|---|---|
| | h. Rebates | 0 | 0 | 0 |
| | i. Loans | 0 | 0 | 0 |
| | j. Grants | 0 | 0 | 0 |
| | k. Others | 0 | 0 | 0 |

## Option B: CII Conservation Program Targets

| | | |
|---|---|---|
| | 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | Yes ○ No ◉ |
| ? | 6. Does your agency document and maintain records on how savings were realized and the method of calculation for estimated savings? | Yes ○ No ◉ |
| ? | 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| ? | 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | | This Year | Next Year |
|---|---|---|---|
| ? | 1. Budgeted Expenditures | 0 | 0 |
| ? | 2. Actual Expenditures | 188.12 | |

## C. "At Least As Effective As"

| | | |
|---|---|---|
| ? | 1. Is your AGENCY implementing an "at least as effective as" variant of this BMP? | Yes ○ 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

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# BMP 09a: CII ULFT Water Savings

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10.

- Yes ○
- No ◉

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

- Consumption ranking ☐
- Service area zones ☐
- Potential savings ☐
- Oldest meter ☐
- CII Sector or subsector ☐
- CII ULFT Study subsector targeting ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

2. How does your agency advertise this program? Check all that apply.

- Direct letter ☐
- Bill insert ☐
- Bill message ☐
- Newsletter ☐
- Telephone ☐
- Web page ☐
- TV PSAs ☐
- TV paid announcements ☐
- Radio PSAs ☐
- Radio paid announcements ☐
- Newspapers ☐
- Trade publications ☐
- Other print media ☐
- Trade shows and events ☐
- Telemarketing ☐

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

## B. Implementation

1. Does your agency keep and maintain customer participant

| | | |
|---|---|---|
| | information? (Read the Help information for a complete list of all the information for this BMP.) | Yes ○ No ◉ |
| ? | 2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? | Yes ○ No ◉ |
| ? | 3. What is the total number of customer accounts participating in the program during the last year ? | 0 |

| ? | CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|---|
| | 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| | a. Offices | | | | |
| | b. Retail / Wholesale | | | | |
| | c. Hotels | | | | |
| | d. Health | | | | |
| | e. Industrial | | | | |
| | f. Schools: K to 12 | | | | |
| | g. Eating | | | | |
| | h. Government | | | | |
| | i. Churches | | | | |
| | j. Other | | | | |

| | | |
|---|---|---|
| | 5. Program design. | Rebate or voucher ☐<br>Direct installation ☐<br>Direct installation with customer co-payment ☐<br>Direct distribution ☐<br>Direct distribution with customer co-payment ☐<br>Retrofit on resale ☐<br>Regulated condition of service ☐ |
| | 6. Does your agency use outside services to implement this program? | Yes ○ No ◉ |
| | a. If yes, check all that apply. | Community Based Organization ☐<br>Consultant ☐<br>Plumbing contractors/subcontracts ☐ |
| | 7. Participant tracking and follow-up. | No follow-up ☐<br>Letter ☐<br>Telephone ☐<br>Site Visit ☐ |
| | 8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program. | |
| | a. Disruption to business | |

| | |
|---|---|
| b. Inadequate payback | |
| c. Inadequate ULFT performance | |
| d. Lack of funding | |
| e. American's with Disabilities Act | |
| f. Permitting | |
| g. Other. Please describe in B. 9. | |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

Worked on program development in 2002
and will implement in 2003.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | | |
|---|---|---|
| a. Wholesale agency contribution | | 0 |
| b. State agency contribution | | 0 |

| | | | | |
|---|---|---|---|---|
| | | c. Federal agency contribution | | 0 |
| | | d. Other contribution | | 0 |
| | | e. Total | | 0 |

## D. Comments

Budget and expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| **a. Water Rate Structure** | Uniform |
| **b. Sewer Rate Structure** | Uniform |
| c. Total Revenue from Volumetric Rates | $109 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $907914 |
| **2. Commercial** | |
| **a. Water Rate Structure** | Uniform |
| **b. Sewer Rate Structure** | Uniform |
| c. Total Revenue from Volumetric Rates | $84864 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $154503 |
| **3. Industrial** | |
| **a. Water Rate Structure** | Uniform |
| **b. Sewer Rate Structure** | Uniform |
| c. Total Revenue from Volumetric Rates | $12525 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $179229 |
| **4. Institutional / Government** | |
| **a. Water Rate Structure** | Uniform |
| **b. Sewer Rate Structure** | Uniform |
| c. Total Revenue from Volumetric Rates | $0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $10622 |
| **5. Irrigation** | |
| **a. Water Rate Structure** | Uniform |
| **b. Sewer Rate Structure** | Uniform |
| c. Total Revenue from Volumetric Rates | $17895 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $4255 |
| **6. Other** | |
| **a. Water Rate Structure** | Uniform |

| | | |
|---|---|---|
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $ 47 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $ 4572 |

## 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 ○ 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

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## BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 65 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 3 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

### B. Conservation Staff 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 ○ 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

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## BMP 13: Water Waste Prohibition

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? — Yes ◉ No ○

a. If YES, describe the ordinance:

The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or

2. Is a copy of the most current ordinance(s) on file with CUWCC? — Yes ◉ No ○

a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Arden Park Vista | 4044 Cayente Way - water running off property<br>831 La Sierra Way - leaking |

### B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

| | |
|---|---|
| a. Gutter flooding | Yes ◉ No ○ |
| b. Single-pass cooling systems for new connections | Yes ○ No ◉ |
| c. Non-recirculating systems in all new conveyor or car wash systems | Yes ○ No ◉ |
| d. Non-recirculating systems in all new commercial laundry systems | Yes ○ No ◉ |
| e. Non-recirculating systems in all new decorative fountains | Yes ◉ No ○ |
| f. Other, please name: Odd-even watering schedule, no | Yes ◉ No ○ |

2. Describe measures that prohibit water uses listed above:

1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday.

### Water Softeners:

3. Indicate which of the following measures your agency has supported in developing state law:

| | | |
|---|---|---|
| | a. Allow the sale of more efficient, demand-initiated regenerating DIR models. | Yes ○ No ◉ |
| | b. Develop minimum appliance efficiency standards that: | |
| | i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. | Yes ○ No ◉ |
| | ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. | Yes ○ No ◉ |
| | c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. | Yes ○ No ◉ |
| | 4. Does your agency include water softener checks in home water audit programs? | Yes ○ No ◉ |
| | 5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? | Yes ○ No ◉ |

## C. Water Waste Prohibition 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 ○ 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." | |

## E. Comments

Budget and expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | 01/31/2003 | **2002** |

### A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | Yes ○ No ● | Yes ○ No ● |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 0 | 0 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **0** | **0** |

6. Describe your agency's ULFT program for single-family residences.

Developing program in 2002 to implement in 2003 for all residential and CII customers.

7. Describe your agency's ULFT program for multi-family residences.

Please see #6

8. Is a toilet retrofit on resale ordinance in effect for your service area? Yes ○ No ●

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

### B. Residential ULFT 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 ○<br>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

Budget and expenditures for all service areas are on the Laguna/Vineyard report.

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# BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

### Test for Condition 1

| | | Single-Family | Multi-Family |
|---|---|---|---|
| Latest Sacramento County Water Agency - Arden Park Vista to Implement Targeting/Marketing Program: | 1999 | | |
| Year Sacramento County Water Agency - Arden Park Vista Reported Implementing Targeting/Marketing Program: | | 2001 | 2001 |
| Sacramento County Water Agency - Arden Park Vista Met Targeting/Marketing Coverage Requirement: | | NO | NO |

### Test for Condition 2

| | | | Single-Family | Multi-Family |
|---|---|---|---|---|
| Latest Year Survey Program to Start: | 1998 | Residential Survey Offers (%) | 202.78% | 14062.50% |
| Reporting Period: | 01-02 | Survey Offers ≥ 20% | YES | YES |

### Test for Condition 3

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys through 2002 | 33 | |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | | |
| Total + Credit | 33 | |

| | | |
|---|---|---|
| Residential Accounts in Base Year | 2,840 | 16 |
| Sacramento County Water Agency - Arden Park Vista Survey Coverage as % of Base Year Residential Accounts | 1.16% | |
| Coverage Requirement by Year 5 of Implementation per Exhibit 1 | 4.90% | 4.90% |
| Sacramento County Water Agency - Arden Park Vista on Schedule to Meet 10-Year Coverage Requirement | NO | NO |



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# BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

### Test for Condition 1

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation > 75%? | Reported Saturation | Saturation > 75%? |
| 1999 | 99-00 | 4.00% | NO | 83.00% | NO |
| 2000 | 99-00 | 4.00% | NO | 83.00% | YES |
| 2001 | 01-02 | 10.00% | NO | 60.00% | NO |
| 2002 | 01-02 | 20.00% | NO | 60.00% | NO |

### Test for Condition 2

| Report Year | Report Period | Sacramento County Water Agency - Arden Park Vista has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |

### Test for Condition 3

Reporting Period: 01-02

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 2,768 | 814 | 29.4% | YES |

| 1992 MF Accounts | Num. Showerheads Distributed to MF Accounts | Multi-Family Coverage Ratio | MF Coverage Ratio > 10% |
|---|---|---|---|
| 5 | | | NO |

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# BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

### Test for Conditions 1 and 2

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |



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# BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

**Test for Compliance**

| | |
|---|---|
| Total Meter Retrofits Reported through 2002 | |
| No. of Unmetered Accounts in Base Year | 3,098 |
| Meter Retrofit Coverage as % of Base Year Unmetered Accounts | |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 24.0% |
| RU on Schedule to meet 10 Year Coverage Requirement | NO |



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# BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | 18 | | | NA |
| 2000 | 99-00 | 2 | 15 | | | NA |
| 2001 | 01-02 | 3 | 15 | | | NA |
| 2002 | 01-02 | 4 | 21 | | | No |

### Test for Condition 2a (survey offers)

| | |
|---|---|
| Select Reporting Period: | 01-02 |
| Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts | 315.2% |
| Survey Offers Equal or Exceed 20% Coverage Requirement | YES |

### Test for Condition 2a (surveys completed)

| | |
|---|---|
| Total Completed Landscape Surveys Reported through | 2 |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | 2 |
| CII Accounts in Base Year | 243 |
| RU Survey Coverage as a % of Base Year CII Accounts | 0.8% |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 3.6% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

### Test for Condition 2b (mixed use budget or meter retrofit program)

| Report Year | Report Period | BMP 5 Implementation Year | Agency has mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | NO | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 24 | |
| 2000 | 99-00 | 2 | 24 | |
| 2001 | 01-02 | 3 | 35 | |
| 2002 | 01-02 | 4 | 43 | |

## Test for Condition 3

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | | |
| 2000 | 99-00 | 2 | NO | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |



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# BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

### Test for Condition 1

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | YES | NO | |
| 2000 | 99-00 | 2 | YES | NO | |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | NO | |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | | NO |
| 2000 | 99-00 | 2 | | NO |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | | NO |



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# BMP 07 Coverage: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

### Test for Condition 1

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |



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# BMP 08 Coverage: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

| | |
|---|---|
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

### Test for Condition 1

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |



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# BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**



## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

### Test for Condition 1

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | NO | NO |
| 2000 | 99-00 | 2 | NO | NO | NO |
| 2001 | 01-02 | 3 | NO | NO | NO |
| 2002 | 01-02 | 4 | NO | NO | NO |

### Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|---|---|---|
| Total Completed Surveys Reported through 2002 | 1 | 0 | 1 |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | | | |
| Total + Credit | 1 | | 1 |
| CII Accounts in Base Year | 153 | 85 | 5 |
| RU Survey Coverage as % of Base Year CII Accounts | 0.7% | | 20.0% |
| Coverage Requirement by Year 4 of Implementation per Exhibit 1 | 2.4% | 2.4% | 2.4% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | YES |

### Test for Condition 2a

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 0.5% | NO |
| 2000 | 99-00 | 2 | 1.0% | NO |
| 2001 | 01-02 | 3 | 1.7% | NO |
| 2002 | 01-02 | 4 | 2.4% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | 2 |
| BMP 9 Survey Coverage | 0.8% |
| BMP 9 Performance Target Coverage | |
| BMP 9 Survey + Performance Target Coverage | 0.8% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | NO |



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# BMP 11 Coverage: Conservation Pricing

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

---

### Test for Condition 1

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |



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# BMP 12 Coverage: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

### Test for Compliance

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | YES | 4 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |



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# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

### Test for Condition 1

| Year | Report Period | RU has ordinance that meets coverage requirement |
|---|---|---|
| 1999 | 99-00 | YES |
| 2000 | 99-00 | YES |
| 2001 | 01-02 | YES |
| 2002 | 01-02 | NO |



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Sacramento County Water Agency

# Water Supply & Reuse – Arden Park Vista

Non 240 Report Year 2003/2004

## Water Supply & Reuse

Reporting Unit: Year:

**Sacramento County Water Agency - Arden Park Vista** **2003**

### Water Supply Source Information

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| Tolenas | 449 | Groundwater |
| Firehouse | 304 | Groundwater |
| Fitch Way | 2 | Groundwater |
| Los Alamos | 137 | Groundwater |
| Stewart | 685 | Groundwater |
| Latham | 221 | Groundwater |
| Bethel | 104 | Groundwater |
| Northrup | 558 | Groundwater |
| La Sierra | 1475 | Groundwater |
| East Walnut Grove | 71 | Groundwater |
| 3rd Street | 94 | Groundwater |
| Hood-Franklin Road | .2 | Groundwater |
| North Market | 700 | Groundwater |
| North Freeway | .4 | Groundwater |
| National Drive | 206 | Groundwater |
| Arena | 191 | Groundwater |

**Total AF: 5197.6**

Reported as of 9/16/05

## Accounts & Water Use

| Reporting Unit Name: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **03/29/2004** | **2003** |

### A. Service Area Population Information:

1. Total service area population 15041

### B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|---|---|---|---|---|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 0 | 0 | 2915 | 3181 |
| 2. Multi-Family | 0 | 0 | 37 | 160 |
| 3. Commercial | 34 | 145 | 242 | 1031 |
| 4. Industrial | 14 | 54 | 96 | 369 |
| 5. Institutional | 0 | 0 | 11 | 126 |
| 6. Dedicated Irrigation | 22 | 112 | 4 | 20 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 0 | 0 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| **Total** | 70 | 311 | 3305 | 4887 |
| | **Metered** | | **Unmetered** | |

Reported as of 9/16/05

# BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Implementation

| | |
|---|---|
| 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is: | 12/09/1993 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |

## B. Water Survey Data

| **Survey Counts:** | **Single Family Accounts** | **Multi-Family Units** |
|---|---|---|
| 1. Number of surveys offered: | 2916 | 37 |
| 2. Number of surveys completed: | 10 | 0 |
| **Indoor Survey:** | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | yes |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | yes | yes |
| **Outdoor Survey:** | | |
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | yes |
| a. If yes, in what form are surveys tracked? | | database |

b. Describe how your agency tracks this information.

Access database

## C. Water Survey Program Expenditures

| | **This Year** | **Next Year** |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |

2. Actual Expenditures 1420.73

## D. "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."

## E. Comments

Budget for all service areas are on the Laguna/Vineyard report.
Expenditures are for the Arden Park Vista and non Zone 40 areas only.

Reported as of 9/16/05

# BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? no
3. Estimated percent of single-family households with low-flow showerheads: 30%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? yes
5. Estimated percent of multi-family households with low-flow showerheads: 90%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   Called all apartment complexes during the week of 11/18/2002. Many complexes had done all or some retrofits. We provided showerheads, aerators and toilet tummies to one apartment complex this year. For SF we have 147 post 92 and 728 retrofit. 875/2915 = 30%.

## B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? yes

   a. If YES, when did your agency begin implementing this strategy? 01/01/2002

   b. Describe your targeting/ marketing strategy.

   Door-to-door distribution to pre-1992 residences.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 606 | 65 |
| 3. Number of toilet-displacement devices distributed: | 606 | 48 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 1212 | 107 |

6. Does your agency track the distribution and cost of low-flow devices? yes

   a. If YES, in what format are low-flow devices tracked? Spreadsheet

   b. If yes, describe your tracking and distribution system :

   Keep records of customers that received retrofit kits in Excel spreadsheets. Distribute door-to-door to pre-1992 residences.

## C. Low-Flow Device Distribution Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 3251.19 | |

## D. "At Least As Effective As"

1. Is your AGENCY implementing an "at least as effective as" No

variant of this BMP?

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."

## E. Comments

Budget for all service areas is shown on Laguna/Vineyard report.
Expenditures are for Arden Park Vista report only.

Reported as of 9/16/05

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## 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) | |
| b. Determine other system verifiable uses (AF) | |
| c. Determine total supply into the system (AF) | |
| 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? | yes |
| 6. Does your agency operate a system leak detection program? | yes |

a. If yes, describe the leak detection program:

Look for leaks in areas prone to them and repair leaks that are discovered.

## B. Survey Data

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 76 |
| 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 | 44264.73 | |

## D. "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."

## E. Comments

Budget for all service areas is included on the Laguna/Vineyard report.

Reported as of 9/16/05

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? — yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? — yes

   a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? — 11/01/1998

   b. Describe the program:

   Convert approximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 year convert customers to meter billing.

3. Number of previously unmetered accounts fitted with meters during report year. — 1

## B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? — no

   a. If YES, when was the feasibility study conducted? (mm/dd/yy)

   b. Describe the feasibility study:

2. Number of CII accounts with mixed-use meters. — 48

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. — 0

## C. Meter Retrofit 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? — 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."

## E. Comments

Reported as of 9/16/05

# BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:

| Sacramento County Water Agency - Arden Park Vista | BMP Form Status: 100% Complete | Year: 2003 |
|---|---|---|

## A. Water Use Budgets

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 26 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

## B. Landscape Surveys

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 01/01/2001 |

b. Description of marketing / targeting strategy:

All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park districts to offer surveys directly.

| | |
|---|---|
| 2. Number of Surveys Offered. | 422 |
| 3. Number of Surveys Completed. | 1 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |

a. If YES, describe below:

Follow up phone call to determine if recommendations have been implemented.

## C. Other BMP 5 Actions

| | |
|---|---|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br><br>Does your agency provide mixed-use accounts with landscape budgets? | no |
| 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

| Type of Financial Incentive: | Budget (Dollars/ | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|

Year)

a. Rebates

b. Loans

c. Grants

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

We provide a packet to all new and change of account customers. The packet includes landscape water use efficiency information.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? no

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 314.34 | |

## E. "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."

## F. Comments

Some of our facilited have water efficient landscape and some do not. Landscape irrigation training is offered through RWA.

Reported as of 9/16/05

# BMP 06: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   SMUD - offering $75-$125 rebates determined by overall efficiency rating of Energy Star clothes washer - customer must have an electric hot water heater. PG&E - offers $25-$125 rebate on the purchase of an Energy Star clothes washer - water heater must be gas or have electricity provided by PG&E

2. Does your agency offer rebates for high-efficiency washers? no
3. What is the level of the rebate? 0
4. Number of rebates awarded. 0

## B. Rebate 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? 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

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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's organized.

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, and public outreach activities.

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 | 182 |
| b. Public Service Announcement | yes | 13 |
| c. Bill Inserts / Newsletters / Brochures | yes | 4 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | yes | 0 |
| f. Special Events, Media Events | yes | 4 |
| g. Speaker's Bureau | no | |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information 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? 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

Budget for all service areas is on the Lag/Vin BMP 7 report.

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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 | 0 | 0 | 0 |
| Grades 4th-6th | yes | 0 | 0 | 0 |
| Grades 7th-8th | yes | 0 | 0 | 0 |
| 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? 01/01/1995

## B. School Education 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? 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

Budget for this BMP is included in budget for BMP 7. All budgets are shown on Lag/Vin reports and include all service areas.

Reported as of 9/16/05

# BMP 09: Conservation Programs for CII Accounts

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Implementation

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

---

### Option A: CII Water Use Survey and Customer Incentives Program

---

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 275 | 110 | 11 |
| b. Number of New Surveys Completed | 0 | 0 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | yes | yes | yes |
| f. Evaluation of all water-using apparatus and processes | yes | yes | yes |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | yes | yes | yes |

| Agency CII Customer Incentives | Budget ($/Year) | No. Awarded to Customers | Total $ Amount Awarded |
|---|---|---|---|
| h. Rebates | 0 | 0 | 0 |
| i. Loans | 0 | 0 | 0 |
| j. Grants | 0 | 0 | 0 |
| k. Others | 0 | 4 | 240 |

---

### Option B: CII Conservation Program Targets

---

| | |
|---|---|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | no |
| 6. Does your agency document and maintain records on how savings were realized and the method of calculation for | no |

estimated savings?

| | |
|---|---|
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | 0 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 240 | |

## 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

Agency CII incentives involved participation in the Rinse and Save program. 4 nozzles were installed in the APV report service areas. Budget for all BMP's are shown on the Lag/Vin reports.

Reported as of 9/16/05

# BMP 09a: CII ULFT Water Savings

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

BMP Form Status: **100% Complete**

Year: **2003**

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

   Consumption ranking
   Potential savings
   CII Sector or subsector

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   We began our program at the end of the year and therefore do not know.

2. How does your agency advertise this program? Check all that apply.

   Direct letter
   Bill insert
   Telephone
   Web page

   a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

   The bill insert was the most effective so far. It went to a wider audience than the water purveyors participating in the program. This caused hard feelings with some customers.

## B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes
2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes
3. What is the total number of customer accounts participating in the program during the last year ? — 0

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | Standard Gravity Tank | Air Assisted | Valve Floor Mount | Valve Wall Mount |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 0 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |
| g. Eating | 0 | 0 | 0 | 0 |
| h. Govern-ment | 0 | 0 | 0 | 0 |
| i. Churches | 0 | 0 | 0 | 0 |
| j. Other | 0 | 0 | 0 | 0 |

5. Program design.

Rebate or voucher

6. Does your agency use outside services to implement this program? No

a. If yes, check all that apply.

7. Participant tracking and follow-up.

Telephone
Site Visit

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

| | |
|---|---|
| a. Disruption to business | 1 |
| b. Inadequate payback | 1 |
| c. Inadequate ULFT performance | 1 |
| d. Lack of funding | 1 |
| e. American's with Disabilities Act | 1 |
| f. Permitting | 1 |
| g. Other. Please describe in B. 9. | 1 |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

It is too early to tell.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

We just started the program in the middle of December, so it is too early to tell any of this.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 0 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 0 |

2. CII ULFT Program: Annual Cost Sharing

| | |
|---|---|
| a. Wholesale agency contribution | 0 |
| b. State agency contribution | 0 |
| c. Federal agency contribution | 0 |
| d. Other contribution | 0 |
| e. Total | 0 |

## D. Comments

Budget for this BMP is shown on BMP 14 Lag/Vin report. This is the budget for all ULFT programs in all service areas.

Reported as of 9/16/05

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1020452 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $94288 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $187015 |
| **3. Industrial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $7868 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $194286 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $0 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $19616 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Uniform |
| c. Total Revenue from Volumetric Rates | $14220 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $4768 |
| **6. Other** | |
| 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 |

## 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? 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

Budget for all service areas is included on Lag/Vin reports. We currently can not separate out the flat portions of meter billing. They are included in meter billing revenue.

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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? | 75% |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 4 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

## B. Conservation Staff 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? | 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

Budget for all service areas is shown on the Lag/Vin reports.

Reported as of 9/16/05

# BMP 13: Water Waste Prohibition

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

   a. If YES, describe the ordinance:

   The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or improperly adjusted sprinklers or other distribution devices. Continued or repeated waste is sufficient cause to meter the customer's service.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Arden Park Vista | 4047 Cayente Way 3701 San Ysidro Way 3836 Las Pasas Way 1334 Howe Avenue 971 La Sierra Drive 4011 Berrendo Drive 2400 Fair Oaks Blvd. 1340 El Nido Way |

## B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding yes

   b. Single-pass cooling systems for new connections yes

   c. Non-recirculating systems in all new conveyor or car wash systems yes

   d. Non-recirculating systems in all new commercial laundry systems no

   e. Non-recirculating systems in all new decorative fountains yes

   f. Other, please name
   Odd-even watering schedule, no irrigation allowed between 12:00 noon and 6 p.m., use of water to clean sidewalks, driveways and patios, leaking pipes, fixtures, or sprinklers shall be repaired promptly, open hoses prohibited, and restaurants shall serve water only upon request. yes

2. Describe measures that prohibit water uses listed above:

   1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday. 2) Irrigation prohibited 12 to 6 p.m. 3) No irrigation water runoff allowed. 4) Repair leaking pipes, fixtures, and sprinklers promptly. 5) No open hoses - shut-off nozzles required. 6) No use of water to clean driveways and sidewalks. 7) Restaurants only serve water upon request. 8) All swimming pools and fountains shall have recirculating pumps.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water no

produced.

c. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. — no

4. Does your agency include water softener checks in home water audit programs? — no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? — no

## C. Water Waste Prohibition 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? — 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."

## E. Comments

All budget and expenditures are shown on Lag/Vin reports.

Reported as of 9/16/05

# BMP 14: Residential ULFT Replacement Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2003** |

## A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | yes | yes |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 5 | 10 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **5** | **10** |

6. Describe your agency's ULFT program for single-family residences.

SCWA is part of a regional program under the RWA. SCWA offers $75 per toilet for toilets that flush 2 gallons or greater. SRCSD will pay up to $50 for each eligible customer. They pay 33% of total cost for owner installed toilets and 25% of total cost for a paid install.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

## B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 1425 | |

## 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

Budget for all service areas is shown on Lag/Vin report.

Reported as of 9/16/05

## Water Supply & Reuse

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

Year: **2004**

**Report Not Filed**

## Accounts & Water Use

Reporting Unit Name: **Sacramento County Water Agency - Arden Park Vista**

Submitted to CUWCC: **02/22/2005**

Year: **2004**

### A. Service Area Population Information:

1. Total service area population 9633

### B. Number of Accounts and Water Deliveries (AF)

| Type | Metered | | Unmetered | |
|---|---|---|---|---|
| | No. of Accounts | Water Deliveries (AF) | No. of Accounts | Water Deliveries (AF) |
| 1. Single-Family | 3 | 4 | 2916 | 3578 |
| 2. Multi-Family | 0 | 0 | 37 | 181 |
| 3. Commercial | 41 | 174 | 241 | 1025 |
| 4. Industrial | 19 | 82 | 93 | 403 |
| 5. Institutional | 0 | 0 | 12 | 231 |
| 6. Dedicated Irrigation | 23 | 162 | 3 | 21 |
| 7. Recycled Water | 0 | 0 | 0 | 0 |
| 8. Other | 0 | 0 | 0 | 0 |
| 9. Unaccounted | NA | 0 | NA | 0 |
| **Total** | 86 | 422 | 3302 | 5439 |
| | **Metered** | | **Unmetered** | |

Reported as of 9/16/05

# BMP 01: Water Survey Programs for Single-Family and Multi-Family Residential Customers

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

| | |
|---|---|
| 1. Based on your signed MOU date, 12/10/1991, your Agency STRATEGY DUE DATE is: | 12/09/1993 |
| 2. Has your agency developed and implemented a targeting/ marketing strategy for SINGLE-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |
| 3. Has your agency developed and implemented a targeting/ marketing strategy for MULTI-FAMILY residential water use surveys? | yes |
| a. If YES, when was it implemented? | 01/01/2001 |

## B. Water Survey Data

| Survey Counts: | Single Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Number of surveys offered: | 2919 | 37 |
| 2. Number of surveys completed: | 9 | 0 |
| **Indoor Survey:** | | |
| 3. Check for leaks, including toilets, faucets and meter checks | yes | yes |
| 4. Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, if necessary | yes | yes |
| 5. Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as neccesary; replace leaking toilet flapper, as necessary | yes | yes |
| **Outdoor Survey:** | | |
| 6. Check irrigation system and timers | yes | yes |
| 7. Review or develop customer irrigation schedule | yes | yes |
| 8. Measure landscaped area (Recommended but not required for surveys) | no | no |
| 9. Measure total irrigable area (Recommended but not required for surveys) | no | no |
| 10. Which measurement method is typically used (Recommended but not required for surveys) | | None |
| 11. Were customers provided with information packets that included evaluation results and water savings recommendations? | yes | yes |
| 12. Have the number of surveys offered and completed, survey results, and survey costs been tracked? | yes | yes |
| a. If yes, in what form are surveys tracked? | | database |

b. Describe how your agency tracks this information.

Access database

## C. Water Survey Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |

2. Actual Expenditures 1373.23

## D. "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."

## E. Comments

Budget for all service areas are on the Laguna/Vineyard report.
Expenditures are for the Arden Park Vista and non Zone 40 areas only.

Reported as of 9/16/05

# BMP 02: Residential Plumbing Retrofit

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

1. Is there an enforceable ordinance in effect in your service area requiring replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts? — no

   a. If YES, list local jurisdictions in your service area and code or ordinance in each:

2. Has your agency satisfied the 75% saturation requirement for single-family housing units? — no
3. Estimated percent of single-family households with low-flow showerheads: — 43%
4. Has your agency satisfied the 75% saturation requirement for multi-family housing units? — yes
5. Estimated percent of multi-family households with low-flow showerheads: — 95%
6. If YES to 2 OR 4 above, please describe how saturation was determined, including the dates and results of any survey research.

   Called all apartment complexes during the week of 11/18/2002. Many complexes had done all or some retrofits. We provided showerheads, aerators and toilet tummies to one apartment complex this year. For SF we have 151 post 92 and 1111 retrofit. 1262/2919 = 43%.

## B. Low-Flow Device Distribution Information

1. Has your agency developed a targeting/ marketing strategy for distributing low-flow devices? — yes

   a. If YES, when did your agency begin implementing this strategy? — 01/01/2002

   b. Describe your targeting/ marketing strategy.

   Door-to-door distribution to pre-1992 residences and advertise availability in Water Spouts.

| Low-Flow Devices Distributed/ Installed | SF Accounts | MF Units |
|---|---|---|
| 2. Number of low-flow showerheads distributed: | 658 | 38 |
| 3. Number of toilet-displacement devices distributed: | 658 | 38 |
| 4. Number of toilet flappers distributed: | 0 | 0 |
| 5. Number of faucet aerators distributed: | 1316 | 76 |

6. Does your agency track the distribution and cost of low-flow devices? — yes

   a. If YES, in what format are low-flow devices tracked? — Database

   b. If yes, describe your tracking and distribution system :

   Keep records of customers that received retrofit kits in Access database. Distribute door-to-door to pre-1992 residences.

## C. Low-Flow Device Distribution Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 4063.6 | |

## D. "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."

## E. Comments

Budget for all service areas is shown on Laguna/Vineyard report. Expenditures are for Arden Park Vista report only.

Reported as of 9/16/05

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **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) | |
| b. Determine other system verifiable uses (AF) | |
| c. Determine total supply into the system (AF) | |
| 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? | yes |
| 6. Does your agency operate a system leak detection program? | yes |

a. If yes, describe the leak detection program:

Look for leaks in areas prone to them and repair leaks that are discovered. In early 2005 we are doing ???

## B. Survey Data

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 77 |
| 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? | 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."

## E. Comments

Budget for all service areas is included on the Laguna/Vineyard report.

Reported as of 9/16/05

# BMP 04: Metering with Commodity Rates for all New Connections and Retrofit of Existing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

1. Does your agency require meters for all new connections and bill by volume-of-use? — yes

2. Does your agency have a program for retrofitting existing unmetered connections and bill by volume-of-use? — yes

   a. If YES, when was the plan to retrofit and bill by volume-of-use existing unmetered connections completed? — 11/01/1998

   b. Describe the program:

   We are required to convert approximately 1200-1800 residential meters per year. Continue flat rate billing and provide comparative data for 1 year. After 1 year convert customers to meter billing.

3. Number of previously unmetered accounts fitted with meters during report year. — 4

## B. Feasibility Study

1. Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? — no

   a. If YES, when was the feasibility study conducted? (mm/dd/yy)

   b. Describe the feasibility study:

2. Number of CII accounts with mixed-use meters. — 26

3. Number of CII accounts with mixed-use meters retrofitted with dedicated irrigation meters during reporting period. — 0

## C. Meter Retrofit 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? — 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."

## E. Comments

All budget and expenditures for this BMP are shown on the Laguna/Vineyard report.

Reported as of 9/16/05

# BMP 05: Large Landscape Conservation Programs and Incentives

Reporting Unit:

| Sacramento County Water Agency - Arden Park Vista | BMP Form Status: 100% Complete | Year: 2004 |
|---|---|---|

## A. Water Use Budgets

| | |
|---|---|
| 1. Number of Dedicated Irrigation Meter Accounts: | 23 |
| 2. Number of Dedicated Irrigation Meter Accounts with Water Budgets: | 0 |
| 3. Budgeted Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 4. Actual Use for Irrigation Meter Accounts with Water Budgets (AF): | 0 |
| 5. Does your agency provide water use notices to accounts with budgets each billing cycle? | no |

## B. Landscape Surveys

| | |
|---|---|
| 1. Has your agency developed a marketing / targeting strategy for landscape surveys? | yes |
| a. If YES, when did your agency begin implementing this strategy? | 01/01/2001 |

b. Description of marketing / targeting strategy:

All customers receive the Water Spouts newsletter twice per year. Surveys are offered in the newsletter. We are also working with the school and park districts to offer surveys directly.

| | |
|---|---|
| 2. Number of Surveys Offered. | 432 |
| 3. Number of Surveys Completed. | 1 |
| 4. Indicate which of the following Landscape Elements are part of your survey: | |
| a. Irrigation System Check | yes |
| b. Distribution Uniformity Analysis | yes |
| c. Review / Develop Irrigation Schedules | yes |
| d. Measure Landscape Area | no |
| e. Measure Total Irrigable Area | no |
| f. Provide Customer Report / Information | yes |
| 5. Do you track survey offers and results? | yes |
| 6. Does your agency provide follow-up surveys for previously completed surveys? | yes |

a. If YES, describe below:

Follow up phone call to determine if recommendations have been implemented.

## C. Other BMP 5 Actions

| | |
|---|---|
| 1. An agency can provide mixed-use accounts with ETo-based landscape budgets in lieu of a large landscape survey program.<br><br>Does your agency provide mixed-use accounts with landscape budgets? | no |
| 2. Number of CII mixed-use accounts with landscape budgets. | 0 |
| 3. Do you offer landscape irrigation training? | yes |
| 4. Does your agency offer financial incentives to improve landscape water use efficiency? | no |

| Type of Financial Incentive: | Budget (Dollars/ | Number Awarded to Customers | Total Amount Awarded |
|---|---|---|---|

Year)

a. Rebates

b. Loans

c. Grants

5. Do you provide landscape water use efficiency information to new customers and customers changing services? yes

a. If YES, describe below:

We provide a packet to all new and change of account customers. The packet includes landscape water use efficiency information.

6. Do you have irrigated landscaping at your facilities? yes

a. If yes, is it water-efficient? yes

b. If yes, does it have dedicated irrigation metering? no

7. Do you provide customer notices at the start of the irrigation season? yes

8. Do you provide customer notices at the end of the irrigation season? yes

## D. Landscape Conservation Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 158.8 | |

## E. "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."

## F. Comments

Some of our facilited have water efficient landscape and some do not. Landscape irrigation training is offered through RWA. All budget for this BMP is shown on the Laguna/Vineyard report. Expenditures for the Non Zone 40 areas are shown on this report.

Reported as of 9/16/05

# BMP 06: High-Efficiency Washing Machine Rebate Programs

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

1. Do any energy service providers or waste water utilities in your service area offer rebates for high-efficiency washers? — yes

   a. If YES, describe the offerings and incentives as well as who the energy/waste water utility provider is.

   SMUD - offering $75-$125 rebates determined by overall efficiency rating of Energy Star clothes washer - customer must have an electric hot water heater. PG&E - offers $75-$125 rebate on the purchase of a qualified Energy Star clothes washer - water heater must be gas or have electricity provided by PG&E.

2. Does your agency offer rebates for high-efficiency washers? — no
3. What is the level of the rebate? — 0
4. Number of rebates awarded. — 0

## B. Rebate 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? — 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

We plan to begin a washing machine rebate program in 2005.

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

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's organized.

   SCWA provides the following public outreach - website, annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, public outreach, and large landscape grant activities.

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 | 88 |
| b. Public Service Announcement | yes | 2 |
| c. Bill Inserts / Newsletters / Brochures | yes | 5 |
| d. Bill showing water usage in comparison to previous year's usage | yes | |
| e. Demonstration Gardens | yes | 0 |
| f. Special Events, Media Events | yes | 6 |
| g. Speaker's Bureau | no | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information 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? 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

Budget for all service areas is on the Lag/Vin BMP 7 report.

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

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 | 4 | 100 | 0 |
| Grades 4th-6th | yes | 5 | 168 | 0 |
| Grades 7th-8th | yes | 6 | 150 | 0 |
| High School | no | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1995

## B. School Education 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? 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

Budget for this BMP for 2004 is included in budget for BMP 7 on the Lag/Vin report. For FY04/05 a separate budget was developed and is shown on the Lag/Vin report. The Lag/Vin reports include budget for all service areas.

Reported as of 9/16/05

# BMP 09: Conservation Programs for CII Accounts

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

| | |
|---|---|
| 1. Has your agency identified and ranked COMMERCIAL customers according to use? | yes |
| 2. Has your agency identified and ranked INDUSTRIAL customers according to use? | yes |
| 3. Has your agency identified and ranked INSTITUTIONAL customers according to use? | yes |

### Option A: CII Water Use Survey and Customer Incentives Program

| | |
|---|---|
| 4. Is your agency operating a CII water use survey and customer incentives program for the purpose of complying with BMP 9 under this option? | yes |

| CII Surveys | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| a. Number of New Surveys Offered | 282 | 112 | 12 |
| b. Number of New Surveys Completed | 2 | 2 | 0 |
| c. Number of Site Follow-ups of Previous Surveys (within 1 yr) | 0 | 0 | 0 |
| d. Number of Phone Follow-ups of Previous Surveys (within 1 yr) | 2 | 0 | 0 |

| CII Survey Components | Commercial Accounts | Industrial Accounts | Institutional Accounts |
|---|---|---|---|
| e. Site Visit | yes | yes | yes |
| f. Evaluation of all water-using apparatus and processes | yes | yes | yes |
| g. Customer report identifying recommended efficiency measures, paybacks and agency incentives | yes | yes | yes |

| Agency CII Customer Incentives | Budget ($/Year) | No. Awarded to Customers | Total $ Amount Awarded |
|---|---|---|---|
| h. Rebates | 0 | 0 | 0 |
| i. Loans | 0 | 0 | 0 |
| j. Grants | 0 | 0 | 0 |
| k. Others | 0 | 5 | 300 |

### Option B: CII Conservation Program Targets

| | |
|---|---|
| 5. Does your agency track CII program interventions and water savings for the purpose of complying with BMP 9 under this option? | yes |
| 6. Does your agency document and maintain records on how | yes |

savings were realized and the method of calculation for estimated savings?

| | |
|---|---|
| 7. Estimated annual savings (AF/yr) from site-verified actions taken by agency since 1991. | .75 |
| 8. Estimated annual savings (AF/yr) from non-site-verified actions taken by agency since 1991. | 0 |

## B. Conservation Program Expenditures for CII Accounts

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 19686.48 | |

## 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

Agency CII incentives involved participation in the Rinse and Save program. 6 nozzles were installed in the APV report service areas. Budget for all BMP's are shown on the Lag/Vin reports. Phone follow ups are completed for all surveys. They have not been done on 2 industrial surveys because we have not received the reports yet.

Reported as of 9/16/05

# BMP 09a: CII ULFT Water Savings

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

1. Did your agency implement a CII ULFT replacement program in the reporting year? If No, please explain why on Line B. 10. — Yes

## A. Targeting and Marketing

1. What basis does your agency use to target customers for participation in this program? Check all that apply.

Consumption ranking
Service area zones
Potential savings
Oldest meter
CII Sector or subsector
CII ULFT Study subsector targeting

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

We mostly targeted our oldest areas which have the greatest potential to have old toilets. We had a student go out to the businesses and tell the customers about our program. They also checked to see if the toilets had been replaced. Unfortunately we had only minimal participation in the program.

2. How does your agency advertise this program? Check all that apply.

Direct letter
Bill insert
Newsletter
Web page
Trade shows and events

a. Describe which method you found to be the most effective overall, and which was the most effective per dollar expended.

The advertising we did was not effective.

## B. Implementation

1. Does your agency keep and maintain customer participant information? (Read the Help information for a complete list of all the information for this BMP.) — Yes

2. Would your agency be willing to share this information if the CUWCC did a study to evaluate the program on behalf of your agency? — Yes

3. What is the total number of customer accounts participating in the program during the last year ? — 1

| CII Subsector | Number of Toilets Replaced | | | |
|---|---|---|---|---|
| 4. | **Standard Gravity Tank** | **Air Assisted** | **Valve Floor Mount** | **Valve Wall Mount** |
| a. Offices | 0 | 0 | 0 | 0 |
| b. Retail / Wholesale | 1 | 0 | 0 | 0 |
| c. Hotels | 0 | 0 | 0 | 0 |
| d. Health | 0 | 0 | 0 | 0 |
| e. Industrial | 0 | 0 | 0 | 0 |
| f. Schools: K to 12 | 0 | 0 | 0 | 0 |
| g. Eating | 0 | 0 | 0 | 0 |
| h. Govern-ment | 0 | 0 | 0 | 0 |

| | | | | |
|---|---|---|---|---|
| i. Churches | 0 | 0 | 0 | 0 |
| j. Other | 0 | 0 | 0 | 0 |

5. Program design. Rebate or voucher

6. Does your agency use outside services to implement this program? No

a. If yes, check all that apply.

7. Participant tracking and follow-up. Letter

8. Based on your program experience, please rank on a scale of 1 to 5, with 1 being the least frequent cause and 5 being the most frequent cause, the following reasons why customers refused to participate in the program.

| | |
|---|---|
| a. Disruption to business | 1 |
| b. Inadequate payback | 1 |
| c. Inadequate ULFT performance | 1 |
| d. Lack of funding | 1 |
| e. American's with Disabilities Act | 1 |
| f. Permitting | 1 |
| g. Other. Please describe in B. 9. | 1 |

9. Please describe general program acceptance/resistance by customers, obstacles to implementation, and other isues affecting program implementation or effectiveness.

> I really don't know the reason why businesses did not participate in the program. We hired a student to go to businesses to inform the customers about all of our business related programs, which I thought would pick up the participation, but it did not. She did find some who had already retrofit their toilets. We sent a survey post card to the customers with their check to get program feedback.

10. Please provide a general assessment of the program for this reporting year. Did your program achieve its objectives? Were your targeting and marketing approaches effective? Were program costs in line with expectations and budgeting?

> We had much less participation then anticipated and used much less of our budget then anticipated as well. Our marketing approaches were not effective.

## C. Conservation Program Expenditures for CII ULFT

1. CII ULFT Program: Annual Budget & Expenditure Data

| | Budgeted | Actual Expenditure |
|---|---|---|
| a. Labor | 0 | 0 |
| b. Materials | 0 | 0 |
| c. Marketing & Advertising | 0 | 0 |
| d. Administration & Overhead | 0 | 75 |
| e. Outside Services | 0 | 0 |
| f. Total | 0 | 75 |

2. CII ULFT Program: Annual Cost Sharing

| | |
|---|---|
| a. Wholesale agency contribution | 0 |
| b. State agency contribution | 0 |

| | |
|---|---|
| c. Federal agency contribution | 0 |
| d. Other contribution | 50 |
| e. Total | 50 |

## D. Comments

Budget for this BMP is shown on BMP 14 Lag/Vin report. This is the budget for all ULFT programs in all service areas. Expenses are for the Non Zone 40 areas only. The rebate amounts were placed under the Administration and Overhead category.

Reported as of 9/16/05

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

| | |
|---|---|
| **1. Residential** | |
| a. Water Rate Structure | Non-volumetric Flat Rate |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $1538 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $1131823 |
| **2. Commercial** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $102174 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $209454 |
| **3. Industrial** | |
| a. Water Rate Structure | Non-volumetric Flat Rate |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $14753 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $208275 |
| **4. Institutional / Government** | |
| a. Water Rate Structure | Non-volumetric Flat Rate |
| 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 | $15942 |
| **5. Irrigation** | |
| a. Water Rate Structure | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $15733 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $6840 |
| **6. Other** | |
| a. Water Rate Structure | Non-volumetric Flat Rate |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $943 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $6840 |

## 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? 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

Budget for all service areas is included on Lag/Vin reports. We currently can not separate out the flat portions of meter billing. They are included in meter billing revenue.

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

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? 100%
   - b. Coordinator's Name Gail Tauchus
   - c. Coordinator's Title Water Conservation Coordinator
   - d. Coordinator's Experience and Number of Years 5 years
   - e. Date Coordinator's position was created (mm/dd/yyyy) 07/01/1996
6. Number of conservation staff, including Conservation Coordinator. 4

## B. Conservation Staff 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? 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

Budget and expenses for all service areas is shown on the Lag/Vin reports.

Reported as of 9/16/05

# BMP 13: Water Waste Prohibition

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Arden Park Vista** | **100% Complete** | **2004** |

## A. Requirements for Documenting BMP Implementation

1. Is a water waste prohibition ordinance in effect in your service area? yes

   a. If YES, describe the ordinance:

   The ordinance does not allow persons to use water in a wasteful manner, does not allow water to run off property excessively, does not allow faulty or improperly adjusted sprinklers or other distribution devices. Continued or repeated waste is sufficient cause to meter the customer's service.

2. Is a copy of the most current ordinance(s) on file with CUWCC? yes

   a. List local jurisdictions in your service area in the first text box and water waste ordinance citations in each jurisdiction in the second text box:

| | |
|---|---|
| Arden Park Vista | 4008 Esperanza Drive, 810 La Sierra Drive, 2680 Huntington Road, 801 Los Molinos Way, 3309 White Oak Court |

## B. Implementation

1. Indicate which of the water uses listed below are prohibited by your agency or service area.

   a. Gutter flooding yes

   b. Single-pass cooling systems for new connections yes

   c. Non-recirculating systems in all new conveyor or car wash systems yes

   d. Non-recirculating systems in all new commercial laundry systems yes

   e. Non-recirculating systems in all new decorative fountains yes

   f. Other, please name
   Odd-even watering schedule, no irrigation allowed between 12:00 noon and 6 p.m., use of water to clean sidewalks, driveways and patios, leaking pipes, fixtures, or sprinklers shall be repaired promptly, open hoses prohibited, and restaurants shall serve water only upon request. yes

2. Describe measures that prohibit water uses listed above:

   1) Odd addresses irrigate Tues., Thurs., Sat., even addresses irrigate Weds., Fri., and Sun. No irrigation allowed on Monday. 2) Irrigation prohibited 12 to 6 p.m. 3) No irrigation water runoff allowed. 4) Repair leaking pipes, fixtures, and sprinklers promptly. 5) No open hoses - shut-off nozzles required. 6) No use of water to clean driveways and sidewalks. 7) Restaurants only serve water upon request. 8) All swimming pools and fountains shall have recirculating pumps.

**Water Softeners:**

3. Indicate which of the following measures your agency has supported in developing state law:

   a. Allow the sale of more efficient, demand-initiated regenerating DIR models. no

   b. Develop minimum appliance efficiency standards that:

      i.) Increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used. no

      ii.) Implement an identified maximum number of gallons discharged per gallon of soft water produced. no

   c. Allow local agencies, including municipalities and special

districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an adverse effect on the reclaimed water or groundwater supply. no

4. Does your agency include water softener checks in home water audit programs? no

5. Does your agency include information about DIR and exchange-type water softeners in educational efforts to encourage replacement of less efficient timer models? no

## C. Water Waste Prohibition 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? 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."

## E. Comments

All budget and expenditures are shown on Lag/Vin reports.

Reported as of 9/16/05

# BMP 14: Residential ULFT Replacement Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

BMP Form Status:
**100% Complete**

Year:
**2004**

## A. Implementation

| | Single-Family Accounts | Multi-Family Units |
|---|---|---|
| 1. Does your Agency have program(s) for replacing high-water-using toilets with ultra-low flush toilets? | yes | yes |

**Number of Toilets Replaced by Agency Program During Report Year**

| Replacement Method | SF Accounts | MF Units |
|---|---|---|
| 2. Rebate | 16 | 84 |
| 3. Direct Install | 0 | 0 |
| 4. CBO Distribution | 0 | 0 |
| 5. Other | 0 | 0 |
| **Total** | **16** | **84** |

6. Describe your agency's ULFT program for single-family residences.

SCWA is part of a regional program under the RWA. SCWA offers $75 per toilet for toilets that flush 2 gallons or greater. SRCSD will pay up to $50 for each eligible customer. They pay 33% of total cost for owner installed toilets and 25% of total cost for a paid install.

7. Describe your agency's ULFT program for multi-family residences.

Same as above

8. Is a toilet retrofit on resale ordinance in effect for your service area? no

9. List local jurisdictions in your service area in the left box and ordinance citations in each jurisdiction in the right box:

## B. Residential ULFT Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 15340.67 | |

## 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

Budget for all service areas is shown on Lag/Vin report.

Reported as of 9/16/05

# BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

---

**Test for Condition 1**

| | | Single-Family | Multi-Family |
|---|---|---|---|
| Sacramento County Water Agency - Arden Park Vista to Implement Targeting/Marketing Program by: | 1999 | | |
| Year Sacramento County Water Agency - Arden Park Vista Reported Implementing Targeting/Marketing Program: | | | |
| Sacramento County Water Agency - Arden Park Vista Met Targeting/Marketing Coverage Requirement: | | NO | NO |

**Test for Condition 2**

| | | | Single-Family | Multi-Family |
|---|---|---|---|---|
| Survey Program to Start by: | 1998 | Residential Survey Offers (%) | 205.46% | 462.50% |
| Reporting Period: | 03-04 | Survey Offers ≥ 20% | YES | YES |

**Test for Condition 3**

| | Completed Residential Surveys | |
|---|---|---|
| | Single Family | Multi-Family |
| Total Completed Surveys 1999 - 2004: | 52 | |
| Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database): | | |
| Total + Credit | 52 | |
| Residential Accounts in Base Year | 2,840 | 16 |
| Sacramento County Water Agency - Arden Park Vista Survey Coverage as % of Base Year Residential Accounts | 1.83% | |

| | | |
|---|---|---|
| Coverage Requirement by Year 7 of Implementation per Exhibit 1 | 7.90% | 7.90% |
| Sacramento County Water Agency - Arden Park Vista on Schedule to Meet 10-Year Coverage Requirement | NO | NO |

**BMP 1 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

**MOU Exhibit 1 Coverage Requirement**

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

---

## Test for Condition 1

| | | Single-Family | | Multi-Family | |
|---|---|---|---|---|---|
| Report Year | Report Period | Reported Saturation | Saturation > 75%? | Reported Saturation | Saturation > 75%? |
| 1999 | 99-00 | 4.00% | NO | 83.00% | NO |
| 2000 | 99-00 | 4.00% | NO | 83.00% | YES |
| 2001 | 01-02 | 10.00% | NO | 60.00% | NO |
| 2002 | 01-02 | 20.00% | NO | 60.00% | NO |
| 2003 | 03-04 | 30.00% | NO | 90.00% | YES |
| 2004 | 03-04 | 43.00% | NO | 95.00% | YES |

---

## Test for Condition 2

| Report Year | Report Period | Sacramento County Water Agency - Arden Park Vista has ordinance requiring showerhead retrofit? |
|---|---|---|
| 1999 | 99-00 | NO |
| 2000 | 99-00 | NO |
| 2001 | 01-02 | NO |
| 2002 | 01-02 | NO |
| 2003 | 03-04 | NO |
| 2004 | 03-04 | NO |

---

## Test for Condition 3

Reporting Period: 03-04

| 1992 SF Accounts | Num. Showerheads Distributed to SF Accounts | Single-Family Coverage Ratio | SF Coverage Ratio > 10% |
|---|---|---|---|
| 2,768 | 1,264 | 45.7% | YES |

| 1992 MF Accounts | Num. Showerheads Distributed to MF Accounts | Multi-Family Coverage Ratio | MF Coverage Ratio > 10% |
|---|---|---|---|
| 5 | 103 | 2060.0% | YES |

---

**BMP 2 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

---

### Test for Conditions 1 and 2

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |
| 2003 | 03-04 | NO | | | NO |
| 2004 | 03-04 | NO | | | NO |

---

**BMP 3 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

| | |
|---|---|
| No exemption request filed | |
| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

**Test for Compliance**

| | |
|---|---|
| Total Meter Retrofits Reported through 2004 | 5 |
| No. of Unmetered Accounts in Base Year | 3,098 |
| Meter Retrofit Coverage as % of Base Year Unmetered Accounts | 0.2% |
| Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 42.0% |
| RU on Schedule to meet 10 Year Coverage Requirement | NO |

**BMP 4 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

| Year | Report Period | BMP 5 Implementation Year | No. of Irrigation Meter Accounts | No. of Irrigation Accounts with Budgets | Budget Coverage Ratio | 90% Coverage Met by Year 4 |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | 18 | | | NA |
| 2000 | 99-00 | 2 | 15 | | | NA |
| 2001 | 01-02 | 3 | 15 | | | NA |
| 2002 | 01-02 | 4 | 21 | | | No |
| 2003 | 03-04 | 5 | 26 | | | No |
| 2004 | 03-04 | 6 | 23 | | | No |

### Test for Condition 2a (survey offers)

| | |
|---|---|
| Select Reporting Period: | 03-04 |
| Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts | 351.4% |
| Survey Offers Equal or Exceed 20% Coverage Requirement | YES |

### Test for Condition 2a (surveys completed)

| | |
|---|---|
| Total Completed Landscape Surveys Reported through | 4 |
| Credit for Surveys Completed Prior to Implementation of Reporting Database | |
| Total + Credit | 4 |
| CII Accounts in Base Year | 243 |
| RU Survey Coverage as a % of Base Year CII Accounts | 1.6% |
| Coverage Requirement by Year of Implementation per Exhibit 1 | 6.3% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO |

### Test for Condition 2b (mixed use budget or meter retrofit program)

Agency has

| Report Year | Report Period | BMP 5 Implementation Year | mix-use budget program | No. of mixed-use budgets |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | |
| 2000 | 99-00 | 2 | NO | |
| 2001 | 01-02 | 3 | NO | |
| 2002 | 01-02 | 4 | NO | |
| 2003 | 03-04 | 5 | NO | |
| 2004 | 03-04 | 6 | NO | |

| Report Year | Report Period | BMP 4 Implementation Year | No. of mixed use CII accounts | No. of mixed use CII accounts fitted with irrig. meters |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | 24 | |
| 2000 | 99-00 | 2 | 24 | |
| 2001 | 01-02 | 3 | 35 | |
| 2002 | 01-02 | 4 | 43 | |
| 2003 | 03-04 | 5 | 48 | |
| 2004 | 03-04 | 6 | 26 | |

---

**Test for Condition 3**

---

| Report Year | Report Period | BMP 5 Implementation Year | RU offers financial incentives? | No. of Loans | Total Amt. Loans |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | | |
| 2000 | 99-00 | 2 | NO | | |
| 2001 | 01-02 | 3 | NO | | |
| 2002 | 01-02 | 4 | NO | | |
| 2003 | 03-04 | 5 | NO | | |
| 2004 | 03-04 | 6 | NO | | |

| Report Year | Report Period | No. of Grants | Total Amt. Grants | No. of rebates | Total Amt. Rebates |
|---|---|---|---|---|---|
| 1999 | 99-00 | | | | |
| 2000 | 99-00 | | | | |
| 2001 | 01-02 | | | | |
| 2002 | 01-02 | | | | |
| 2003 | 03-04 | | | | |
| 2004 | 03-04 | | | | |

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**BMP 5 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 6.

Condition 1: Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

---

### Test for Condition 1

| Year | Report Period | BMP 6 Implementation Year | Rebate Offered by ESP? | Rebate Offered by RU? | Rebate Amount |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | YES | NO | |
| 2000 | 99-00 | 2 | YES | NO | |
| 2001 | 01-02 | 3 | YES | NO | |
| 2002 | 01-02 | 4 | YES | NO | |
| 2003 | 03-04 | 5 | YES | NO | |
| 2004 | 03-04 | 6 | YES | NO | |

| Year | Report Period | BMP 6 Implementation Year | No. Rebates Awarded | Coverage Met? |
|---|---|---|---|---|
| 1999 | 99-00 | 1 | | NO |
| 2000 | 99-00 | 2 | | NO |
| 2001 | 01-02 | 3 | | NO |
| 2002 | 01-02 | 4 | | NO |
| 2003 | 03-04 | 5 | | NO |
| 2004 | 03-04 | 6 | | NO |

---

**BMP 6 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 07 Coverage: Public Information Programs

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

---

### Test for Condition 1

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

---

**BMP 7 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 08 Coverage: School Education Programs

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

---

### Test for Condition 1

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

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**BMP 8 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.
OR
Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.
OR
Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

---

### Test for Condition 1

| Year | Report Period | BMP 9 Implementation Year | Ranked Com. Use | Ranked Ind. Use | Ranked Inst. Use |
|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | NO | NO | NO |
| 2000 | 99-00 | 2 | NO | NO | NO |
| 2001 | 01-02 | 3 | NO | NO | NO |
| 2002 | 01-02 | 4 | NO | NO | NO |
| 2003 | 03-04 | 5 | YES | YES | YES |
| 2004 | 03-04 | 6 | YES | YES | YES |

---

### Test for Condition 2a

| | Commercial | Industrial | Institutional |
|---|---|---|---|
| Total Completed Surveys Reported through 2004 | 3 | 2 | 1 |
| Credit for Surveys Completed Prior to Implementation of Reporting Databases | | | |
| Total + Credit | 3 | 2 | 1 |
| CII Accounts in Base Year | 153 | 85 | 5 |
| RU Survey Coverage as % of Base Year CII Accounts | 2.0% | 2.4% | 20.0% |
| Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 4.2% | 4.2% | 4.2% |
| RU on Schedule to Meet 10 Year Coverage Requirement | NO | NO | YES |

---

### Test for Condition 2a

| Year | Report Period | BMP 9 Implementation Year | Performance Target Savings (AF/yr) | Performance Target Savings Coverage | Performance Target Savings Coverage Requirement | Coverage Requirement Met |
|---|---|---|---|---|---|---|
| 1999 | 99-00 | 1 | | | 0.5% | NO |
| 2000 | 99-00 | 2 | | | 1.0% | NO |

| | | | | | |
|---|---|---|---|---|---|
| 2001 01-02 | 3 | | | 1.7% | NO |
| 2002 01-02 | 4 | | | 2.4% | NO |
| 2003 03-04 | 5 | | | 3.3% | NO |
| 2004 03-04 | 6 | 1 | 0.1% | 4.2% | NO |

**Test for Condition 2c**

| | |
|---|---|
| Total BMP 9 Surveys + Credit | 6 |
| BMP 9 Survey Coverage | 2.5% |
| BMP 9 Performance Target Coverage | 0.1% |
| BMP 9 Survey + Performance Target Coverage | 2.5% |
| Combined Coverage Equals or Exceeds Coverage Requirement? | NO |

**BMP 9 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 11 Coverage: Conservation Pricing

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

---

### Test for Condition 1

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |
| 2003 | 03-04 | NO | YES |
| 2004 | 03-04 | YES | NO |

---

**BMP 11 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 12 Coverage: Conservation Coordinator

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

---

**Test for Compliance**

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | YES | 4 |
| 2000 | 99-00 | YES | 2 |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |
| 2003 | 03-04 | YES | 2 |
| 2004 | 03-04 | YES | 4 |

**BMP 12 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 13 Coverage: Water Waste Prohibition

Reporting Unit:
**Sacramento County Water Agency - Arden Park Vista**

Reporting Period:
**03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

---

### Test for Condition 1

---

**Agency or service area prohibits:**

| Year | Gutter Flooding | Single-Pass Cooling Systems | Single-Pass Car Wash | Single-Pass Laundry | Single-Pass Fountains | Other | RU has ordinance that meets coverage requirement |
|---|---|---|---|---|---|---|---|
| 1999 | yes | yes | yes | yes | yes | no | YES |
| 2000 | yes | yes | yes | yes | yes | no | YES |
| 2001 | yes | yes | yes | yes | yes | yes | YES |
| 2002 | yes | no | no | no | yes | yes | NO |
| 2003 | yes | yes | yes | no | yes | yes | NO |
| 2004 | yes | yes | yes | yes | yes | yes | YES |

---

**BMP 13 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: **Sacramento County Water Agency - Arden Park Vista**

## MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement.

An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

**Status: Water supplier has not met one or more coverage requirements for this BMP. as of 2004**

| Coverage Year | BMP 14 Data Submitted to CUWCC | Exemption Filed with CUWCC | ROR Ordinance in Effect | Exhibit 6 Coverage Req'mt (AF) | Toilet Replacement Program Water Savings* (AF) |
|---|---|---|---|---|---|
| 1998 | No | | | 5.60 | |
| 1999 | Yes | No | No | 16.08 | |
| 2000 | Yes | No | No | 30.82 | |
| 2001 | Yes | No | No | 49.23 | |
| 2002 | Yes | No | No | 70.80 | |
| 2003 | Yes | No | No | 95.07 | 0.61 |
| 2004 | Yes | No | No | 121.61 | 5.68 |
| 2005 | No | No | No | 150.06 | |
| 2006 | No | No | No | 180.09 | |
| 2007 | No | No | No | 211.39 | |

*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

---

**BMP 14 COVERAGE STATUS SUMMARY:**
**Water supplier has not met one or more coverage requirements for this BMP.**

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Sacramento County Water Agency

# Water Supply & Reuse – Wholesale

Years 2001/2002

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## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **2001** | 12/11/2002 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| East Park | 279 | Groundwater | Update | |
| Sheldon Turnou | 278 | Imported | Update | Delete |

**Total AF: 557**

### ADD Water Supply Sources:

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |

### Purchaser Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

| Name of Agency | Quantity (AF) Supplied | Retailer or Wholesaler | | |
|---|---|---|---|---|
| Elk Grove Water S | 278 | Retailer | Update | Delete |

**Total: 278**

### ADD Purchasers:

| Name of Agency | Quantity (AF) Supplied | Retailer or Wholesaler | |
|---|---|---|---|
| | | Choose One | Add |

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/11/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ● |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ● |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ● |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ○ No ● |
| | 6. Does your agency operate a system leak detection program? | Yes ● No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 3.5 |
| | 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 ○ 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."

## E. Comments

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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/11/2002 | **2001** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with

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 ◉ No ○ | 13 |
| b. Public Service Announcement | Yes ◉ No ○ | 12 |
| c. Bill Inserts / Newsletters / Brochures | Yes ○ No ◉ | |
| d. Bill showing water usage in comparison to previous year's usage | Yes ○ No ◉ | |
| e. Demonstration Gardens | Yes ○ No ◉ | 0 |
| f. Special Events, Media Events | Yes ◉ No ○ | 7 |
| g. Speaker's Bureau | Yes ○ No ◉ | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information 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 ○ 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

All public information program activities listed above were available to our wholesale customers.

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## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/05/2002 | **2001** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ○ No ◉

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 ○ No ◉ | 0 | 0 | 0 |
| Grades 4th-6th | Yes ○ No ◉ | 0 | 0 | 0 |
| Grades 7th-8th | Yes ○ No ◉ | 0 | 0 | 0 |
| High School | Yes ○ No ◉ | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education 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 ○ 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

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## BMP 10: Wholesale Agency Assistance Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/05/2002 | **2001** |

## A. Implementation

### 1. Financial Support by BMP

| BMP | Financial Incentives Offered? | Budgeted Amount | Amount Awarded | BMP | Financial Incentives Offered? | Budgeted Amount | Amount Awarded |
|---|---|---|---|---|---|---|---|
| 1 | Yes ○ No ◉ | | | 8 | Yes ○ No ◉ | | |
| 2 | Yes ○ No ◉ | | | 9 | Yes ○ No ◉ | | |
| 3 | Yes ○ No ◉ | | | 10 | Yes ○ No ◉ | | |
| 4 | Yes ○ No ◉ | | | 11 | Yes ○ No ◉ | | |
| 5 | Yes ○ No ◉ | | | 12 | Yes ○ No ◉ | | |
| 6 | Yes ○ No ◉ | | | 13 | Yes ○ No ◉ | | |
| 7 | Yes ○ No ◉ | | | 14 | Yes ○ No ◉ | | |

### 2. Technical Support

| | |
|---|---|
| a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness? | Yes ○ No ◉ |
| b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements? | Yes ○ No ◉ |
| c. Has your agency conducted or funded workshops addressing: | |
| 1) ULFT replacement | Yes ○ No ◉ |
| 2) Residential retrofits | Yes ○ No ◉ |
| 3) Commercial, industrial, and institutional surveys | Yes ○ No ◉ |
| 4) Residential and large turf irrigation | Yes ○ No ◉ |
| | 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 ○ No ◉ | | 8 | Yes ○ No ◉ | |
| 2 | Yes ○ No ◉ | | 9 | Yes ○ No ◉ | |
| 3 | Yes ○ No ◉ | | 10 | Yes ○ No ◉ | |
| 4 | Yes ○ No ◉ | | 11 | Yes ○ No ◉ | |
| 5 | Yes ○ No ◉ | | 12 | Yes ○ No ◉ | |
| 6 | Yes ○ No ◉ | | 13 | Yes ○ No ◉ | |
| 7 | Yes ○ No ◉ | | 14 | Yes ○ No ◉ | |

## 4. Regional Programs by BMP

| BMP | Implementation/ Management Program? | BMP | Implementation/ Management Program? |
|---|---|---|---|
| 1 | Yes ○ No ◉ | 8 | Yes ○ No ◉ |
| 2 | Yes ○ No ◉ | 9 | Yes ○ No ◉ |
| 3 | Yes ○ No ◉ | 10 | Yes ○ No ◉ |
| 4 | Yes ○ No ◉ | 11 | Yes ○ No ◉ |
| 5 | Yes ○ No ◉ | 12 | Yes ○ No ◉ |
| 6 | Yes ○ No ◉ | 13 | Yes ○ No ◉ |
| 7 | Yes ○ No ◉ | 14 | Yes ○ No ◉ |

## B. Wholesale Agency Assistance 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 ○ 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."

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/11/2002 | **2001** |

### A. Implementation

| | | |
|---|---|---|
| | **Rate Structure Data Volumetric Rates for Water Service by Customer Class** | |
| | **1. Residential** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $48499 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **2. Commercial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **3. Industrial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **4. Institutional / Government** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **5. Irrigation** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **6. Other** | |
| | **a. Water Rate Structure** | Uniform |

| | | |
|---|---|---|
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

## 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 ○ 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

Budgeted expenditures for all service areas are on the Laguna/Vineyard report.

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## BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 12/05/2002 | **2001** |

### A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 60 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 2 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

### B. Conservation Staff 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 ○ 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

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## Water Supply & Reuse

| Reporting Unit: | Year: | Submitted to CUWCC |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **2002** | 01/31/2003 |

### Water Supply Source Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

Acre Feet Conversion Calculator

| Supply Source Name | Quantity (AF) Supplied | Supply Type | Update/Delete a Supply Source | |
|---|---|---|---|---|
| East Park | 1473 | Groundwater | Update | |
| Sheldon Turno | 337 | Groundwater | Update | Delete |

**Total AF: 1810**

### ADD Water Supply Sources:

| Supply Source Name | Quantity (AF) Supplied | Supply Type | ADD a Supply Source |
|---|---|---|---|
| | | Choose One | Add |

### Purchaser Information

You must click "Update" or "Delete" for **each** supply source you identify. Selecting Update is the same as the "Save Session" button on other forms.

| Name of Agency | Quantity (AF) Supplied | Retailer or Wholesaler |
|---|---|---|
| | | **Total:** |

### ADD Purchasers:

| Name of Agency | Quantity (AF) Supplied | Retailer or Wholesaler | |
|---|---|---|---|
| | | Choose One | Add |

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## BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| ? | 1. Has your agency completed a pre-screening system audit for this reporting year? | Yes ○ No ● |
| ? | 2. If YES, enter the values (AF/Year) used to calculate verifiable use as a percent of total production: Unit Conversion Calculator | |
| | a. Determine metered sales (AF) | |
| | b. Determine other system verifiable uses (AF) | |
| | c. Determine total supply into the system (AF) | |
| | d. Using the numbers above, if (Metered Sales + Other Verifiable Uses) / Total Supply is < 0.9 then a full-scale system audit is required. *(This number will automatically calculate when you Save the Session)* | 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? | Yes ○ No ● |
| | 4. Did your agency complete a full-scale audit during this report year? | Yes ○ No ● |
| ? | 5. Does your agency maintain in-house records of audit results or the completed AWWA audit worksheets for the completed audit? | Yes ○ No ● |
| | 6. Does your agency operate a system leak detection program? | Yes ● No ○ |
| | a. If yes, describe the leak detection program: Look for leaks in areas prone to them and repair leaks that are discovered. | |

### B. Survey Data

| | | |
|---|---|---|
| | 1. Total number of miles of distribution system line: | 5 |
| | 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 ○ 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."

## E. Comments

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## BMP 07: Public Information Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

### A. Implementation

1. Does your agency maintain an active public information program to promote and educate customers about water conservation? — Yes ◉ No ○

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

SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, water use survey program, door hangers with water

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 ◉ No ○ | 400 |
| b. Public Service Announcement | Yes ◉ No ○ | 2 |
| c. Bill Inserts / Newsletters / Brochures | Yes ○ No ◉ | |
| d. Bill showing water usage in comparison to previous year's usage | Yes ○ No ◉ | |
| e. Demonstration Gardens | Yes ○ No ◉ | |
| f. Special Events, Media Events | Yes ◉ No ○ | 3 |
| g. Speaker's Bureau | Yes ○ No ◉ | |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | Yes ◉ No ○ | |

### B. Conservation Information 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 ○ 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

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Memorandum of Understanding

## BMP 08: School Education Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

### A. Implementation

1. Has your agency implemented a school information program to promote water conservation? — Yes ○ No ◉

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 ○ No ◉ | | | |
| Grades 4th-6th | Yes ○ No ◉ | | | |
| Grades 7th-8th | Yes ○ No ◉ | | | |
| High School | Yes ○ No ◉ | | | |

3. Did your Agency's materials meet state education framework requirements? — Yes ◉ No ○

4. When did your Agency begin implementing this program? (Year must be four digit mm/dd/yyyy) — 01/01/1995

### B. School Education 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 ○ 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."

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Memorandum of Understanding

## BMP 10: Wholesale Agency Assistance Programs

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

## A. Implementation

### 1. Financial Support by BMP

| BMP | Financial Incentives Offered? | Budgeted Amount | Amount Awarded | BMP | Financial Incentives Offered? | Budgeted Amount | Amount Awarded |
|---|---|---|---|---|---|---|---|
| 1 | Yes ○ No ◉ | | | 8 | Yes ○ No ◉ | | |
| 2 | Yes ○ No ◉ | | | 9 | Yes ○ No ◉ | | |
| 3 | Yes ○ No ◉ | | | 10 | Yes ○ No ◉ | | |
| 4 | Yes ○ No ◉ | | | 11 | Yes ○ No ◉ | | |
| 5 | Yes ○ No ◉ | | | 12 | Yes ○ No ◉ | | |
| 6 | Yes ○ No ◉ | | | 13 | Yes ○ No ◉ | | |
| 7 | Yes ○ No ◉ | | | 14 | Yes ○ No ◉ | | |

### 2. Technical Support

| | |
|---|---|
| a. Has your agency conducted or funded workshops addressing CUWCC procedures for calculating program savings, costs and cost-effectiveness? | Yes ○ No ◉ |
| b. Has your agency conducted or funded workshops addressing retail agencies' BMP implementation reporting requirements? | Yes ○ No ◉ |
| c. Has your agency conducted or funded workshops addressing: | |
| 1) ULFT replacement | Yes ○ No ◉ |
| 2) Residential retrofits | Yes ○ No ◉ |
| 3) Commercial, industrial, and institutional surveys | Yes ○ No ◉ |
| 4) Residential and large turf irrigation | Yes ○ No ◉ |
| | 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 ○ No ◉ | | 8 | Yes ○ No ◉ | |
| 2 | Yes ○ No ◉ | | 9 | Yes ○ No ◉ | |
| 3 | Yes ○ No ◉ | | 10 | Yes ○ No ◉ | |
| 4 | Yes ○ No ◉ | | 11 | Yes ○ No ◉ | |
| 5 | Yes ○ No ◉ | | 12 | Yes ○ No ◉ | |
| 6 | Yes ○ No ◉ | | 13 | Yes ○ No ◉ | |
| 7 | Yes ○ No ◉ | | 14 | Yes ○ No ◉ | |

## 4. Regional Programs by BMP

| BMP | Implementation/ Management Program? | BMP | Implementation/ Management Program? |
|---|---|---|---|
| 1 | Yes ○ No ◉ | 8 | Yes ○ No ◉ |
| 2 | Yes ○ No ◉ | 9 | Yes ○ No ◉ |
| 3 | Yes ○ No ◉ | 10 | Yes ○ No ◉ |
| 4 | Yes ○ No ◉ | 11 | Yes ○ No ◉ |
| 5 | Yes ○ No ◉ | 12 | Yes ○ No ◉ |
| 6 | Yes ○ No ◉ | 13 | Yes ○ No ◉ |
| 7 | Yes ○ No ◉ | 14 | Yes ○ No ◉ |

## B. Wholesale Agency Assistance 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 ○<br>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."

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## BMP 11: Conservation Pricing

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

### A. Implementation

| | | |
|---|---|---|
| | **Rate Structure Data Volumetric Rates for Water Service by Customer Class** | |
| | **1. Residential** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $58683.64 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **2. Commercial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **3. Industrial** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **4. Institutional / Government** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **5. Irrigation** | |
| | **a. Water Rate Structure** | Uniform |
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |
| | **6. Other** | |
| | **a. Water Rate Structure** | Uniform |

| | | |
|---|---|---|
| | **b. Sewer Rate Structure** | Uniform |
| | c. Total Revenue from Volumetric Rates | $ 0 |
| | d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $ 0 |

## 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 ○ 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."

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# BMP 12: Conservation Coordinator

| Reporting Unit: | Submitted to CUWCC | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | 01/31/2003 | **2002** |

## A. Implementation

| | |
|---|---|
| 1. Does your Agency have a conservation coordinator? | Yes ◉ No ○ |
| 2. Is this a full-time position? | Yes ◉ No ○ |
| 3. If no, is the coordinator supplied by another agency with which you cooperate in a regional conservation program ? | Yes ○ No ○ |
| 4. Partner agency's name: | |
| 5. If your agency supplies the conservation coordinator: | |
| a. What percent is this conservation coordinator's position? | 65 |
| b. Coordinator's Name | Gail Tauchus |
| c. Coordinator's Title | Water Conservation Coordinator |
| d. Coordinator's Experience and Number of Years | 3 years |
| e. Date Coordinator's position was created (mm/dd/yyyy) | 07/01/1996 |
| 6. Number of conservation staff, including Conservation Coordinator. | 2 |

## B. Conservation Staff 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 ○ 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

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# Best Management Practices Report Filing

Sacramento County Water Agency

# Water Supply & Reuse – Wholesale

Years 2003/2004

## Water Supply & Reuse

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Year: **2003**

### Water Supply Source Information

| Supply Source Name | Quantity (AF) Supplied | Supply Type |
|---|---|---|
| Sheldon Turnout | 184 | Groundwater |

**Total AF: 184**

### Purchaser Information

| Name of Agency | Quantity (AF) Supplied | Retailer or Wholesaler |
|---|---|---|

**Total AF:**

Reported as of 9/16/05

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **100% Complete** | **2003** |

## 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) | |
| b. Determine other system verifiable uses (AF) | |
| c. Determine total supply into the system (AF) | |
| 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? | yes |
| 6. Does your agency operate a system leak detection program? | yes |

a. If yes, describe the leak detection program:

Look for leaks in areas prone to them and repair leaks that are discovered.

## B. Survey Data

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 5 |
| 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? | 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."

## E. Comments

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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's organized.

   SCWA provides the following public outreach - annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, and public outreach activities.

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 | 182 |
| b. Public Service Announcement | yes | 13 |
| c. Bill Inserts / Newsletters / Brochures | no | |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 4 |
| g. Speaker's Bureau | no | |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information 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? 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

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

BMP Form Status:
**100% Complete**

Year:
**2003**

## A. Implementation

1.Has your agency implemented a school information program to promote water conservation? no

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 | no | | | |
| Grades 4th-6th | no | | | |
| Grades 7th-8th | no | | | |
| High School | no | | | |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1995

## B. School Education 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? 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

Reported as of 9/16/05

# BMP 10: Wholesale Agency Assistance Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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 | No | | |
| 2 | No | | | 9 | No | | |
| 3 | No | | | 10 | No | | |
| 4 | No | | | 11 | No | | |
| 5 | No | | | 12 | No | | |
| 6 | No | | | 13 | No | | |
| 7 | No | | | 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: | |
| 1) ULFT replacement | No |
| 2) Residential retrofits | No |
| 3) Commercial, industrial, and institutional surveys | No |
| 4) Residential and large turf irrigation | No |
| 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 | No | | 8 | No | |

| | | | |
|---|---|---|---|
| **2** | No | **9** | No |
| **3** | No | **10** | No |
| **4** | No | **11** | No |
| **5** | No | **12** | No |
| **6** | No | **13** | No |
| **7** | No | **14** | No |

### 4. Regional Programs by BMP

| BMP | Implementation/ Management Program? | BMP | Implementation/ Management Program? |
|---|---|---|---|
| **1** | No | **8** | No |
| **2** | No | **9** | No |
| **3** | No | **10** | No |
| **4** | No | **11** | No |
| **5** | No | **12** | No |
| **6** | No | **13** | No |
| **7** | No | **14** | No |

## B. Wholesale Agency Assistance 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? 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

Reported as of 9/16/05

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **100% Complete** | **2003** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

**1. Residential**

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 $

**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

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 Uniform

b. Sewer Rate Structure Uniform

c. Total Revenue from Volumetric Rates $41232.28

d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources $0

## 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? 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

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

BMP Form Status:
**100% Complete**

Year:
**2003**

## 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? 75%
   - b. Coordinator's Name Gail Tauchus
   - c. Coordinator's Title Water Conservation Coordinator
   - d. Coordinator's Experience and Number of Years 4 years
   - e. Date Coordinator's position was created (mm/dd/yyyy) 07/01/1996
6. Number of conservation staff, including Conservation Coordinator. 2

## B. Conservation Staff 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? 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

Reported as of 9/16/05

## Water Supply & Reuse

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

Year:
**2004**

**Report Not Filed**

# BMP 03: System Water Audits, Leak Detection and Repair

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **100% Complete** | **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) | |
| b. Determine other system verifiable uses (AF) | |
| c. Determine total supply into the system (AF) | |
| 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? | yes |
| 6. Does your agency operate a system leak detection program? | yes |

a. If yes, describe the leak detection program:

Look for leaks in areas prone to them and repair leaks that are discovered. In 2005 we will complete a leak detection study as part of the water audit study. This will then provide the basis for our leak detection program.

## B. Survey Data

| | |
|---|---|
| 1. Total number of miles of distribution system line. | 0 |
| 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? | 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."

## E. Comments

The distribution system in the wholesale area is owned and operated by Elk Grove Water Service.

Reported as of 9/16/05

# BMP 07: Public Information Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

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's organized.

   SCWA provides the following public outreach - website, annual water quality report, bi-annual newsletter, school presentations, water efficiency checkup program, door hangers for water conservation enforcement efforts, door to door distribution of retrofit kits, information packets sent to new and change of account customers, and water conservation phone hotline. We provide staffing for booths at public events. SCWA also participates in the RWEPAC conservation, ULFT, and public outreach activities.

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 | 88 |
| b. Public Service Announcement | yes | 2 |
| c. Bill Inserts / Newsletters / Brochures | yes | 2 |
| d. Bill showing water usage in comparison to previous year's usage | no | |
| e. Demonstration Gardens | no | |
| f. Special Events, Media Events | yes | 6 |
| g. Speaker's Bureau | no | 0 |
| h. Program to coordinate with other government agencies, industry and public interest groups and media | yes | |

## B. Conservation Information 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? 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

Reported as of 9/16/05

# BMP 08: School Education Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

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 | 3 | 320 | 0 |
| Grades 4th-6th | yes | 5 | 808 | 0 |
| Grades 7th-8th | yes | 0 | 0 | 0 |
| High School | no | 0 | 0 | 0 |

3. Did your Agency's materials meet state education framework requirements? yes

4. When did your Agency begin implementing this program? 01/01/1995

## B. School Education 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? 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

Some schools in the Elk Grove Water Service areas were served by the Be Water Wise program and the SYRCL program. Budget numbers are in the Laguna/Vineyard report

Reported as of 9/16/05

# BMP 10: Wholesale Agency Assistance Programs

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

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 | 0 | 0 | 8 | No | 0 | 0 |
| 2 | yes | 0 | 547.43 | 9 | No | 0 | 0 |
| 3 | No | 0 | 0 | 10 | No | 0 | 0 |
| 4 | No | 0 | 0 | 11 | No | 0 | 0 |
| 5 | No | 0 | 0 | 12 | No | 0 | 0 |
| 6 | No | 0 | 0 | 13 | No | 0 | 0 |
| 7 | No | 0 | 0 | 14 | No | 0 | 0 |

### 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: | |
| 1) ULFT replacement | No |
| 2) Residential retrofits | No |
| 3) Commercial, industrial, and institutional surveys | No |
| 4) Residential and large turf irrigation | No |
| 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 |

| | | | | | |
|---|---|---|---|---|---|
| **2** | yes | 1 | **9** | yes | 1 |
| **3** | yes | 1 | **10** | yes | 1 |
| **4** | yes | 1 | **11** | yes | 1 |
| **5** | yes | 1 | **12** | yes | 1 |
| **6** | yes | 1 | **13** | yes | 1 |
| **7** | yes | 1 | **14** | yes | 1 |

### 4. Regional Programs by BMP

| BMP | Implementation/ Management Program? | BMP | Implementation/ Management Program? |
|---|---|---|---|
| **1** | No | **8** | No |
| **2** | No | **9** | No |
| **3** | No | **10** | No |
| **4** | No | **11** | No |
| **5** | No | **12** | No |
| **6** | No | **13** | No |
| **7** | No | **14** | No |

## B. Wholesale Agency Assistance Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 547.43 | |

## 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

We provided 47 - 1 bath and 64 - 2 bath retrofit kits to Elk Grove Water Service.

Reported as of 9/16/05

# BMP 11: Conservation Pricing

| Reporting Unit: | BMP Form Status: | Year: |
|---|---|---|
| **Sacramento County Water Agency - Wholesale** | **100% Complete** | **2004** |

## A. Implementation

**Rate Structure Data Volumetric Rates for Water Service by Customer Class**

**1. Residential**

| | |
|---|---|
| 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 | $ |

**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 | |
| 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 | Uniform |
| b. Sewer Rate Structure | Service Not Provided |
| c. Total Revenue from Volumetric Rates | $70847.56 |
| d. Total Revenue from Non-Volumetric Charges, Fees and other Revenue Sources | $0 |

## 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? 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

Reported as of 9/16/05

# BMP 12: Conservation Coordinator

Reporting Unit:
**Sacramento County Water Agency - Wholesale**

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? 100%
   - b. Coordinator's Name Gail Tauchus
   - c. Coordinator's Title Water Conservation Coordinator
   - d. Coordinator's Experience and Number of Years 5 years
   - e. Date Coordinator's position was created (mm/dd/yyyy) 07/01/1996
6. Number of conservation staff, including Conservation Coordinator. 2

## B. Conservation Staff Program Expenditures

| | This Year | Next Year |
|---|---|---|
| 1. Budgeted Expenditures | 0 | 0 |
| 2. Actual Expenditures | 74.43 | |

## 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

Reported as of 9/16/05

# BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA's Manual of Water Supply Practices, Water Audits, and Leak Detection.

---

### Test for Conditions 1 and 2

| Report Year | Report Period | Pre-Screen Completed | Pre-Screen Result | Full Audit Indicated | Full Audit Completed |
|---|---|---|---|---|---|
| 1999 | 99-00 | NO | | | NO |
| 2000 | 99-00 | NO | | | NO |
| 2001 | 01-02 | NO | | | NO |
| 2002 | 01-02 | NO | | | NO |
| 2003 | 03-04 | NO | | | NO |
| 2004 | 03-04 | NO | | | NO |

---

**BMP 3 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 07 Coverage: Public Information Programs

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7's definition.

---

### Test for Condition 1

| Year | Report Period | BMP 7 Implementation Year | RU Has Public Information Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | NO |
| 2000 | 99-00 | 3 | NO |
| 2001 | 01-02 | 4 | YES |
| 2002 | 01-02 | 5 | YES |
| 2003 | 03-04 | 6 | YES |
| 2004 | 03-04 | 7 | YES |

---

**BMP 7 COVERAGE STATUS SUMMARY:**
**Water supplier is meeting coverage requirements for this BMP.**

# BMP 08 Coverage: School Education Programs

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 8.

Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

---

### Test for Condition 1

| Year | Report Period | BMP 8 Implementation Year | RU Has School Education Program? |
|---|---|---|---|
| 1999 | 99-00 | 2 | YES |
| 2000 | 99-00 | 3 | YES |
| 2001 | 01-02 | 4 | NO |
| 2002 | 01-02 | 5 | NO |
| 2003 | 03-04 | 6 | NO |
| 2004 | 03-04 | 7 | YES |

---

**BMP 8 COVERAGE STATUS SUMMARY:**

**Water supplier has not met one or more coverage requirements for this BMP.**

# BMP 11 Coverage: Conservation Pricing

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates);rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

---

### Test for Condition 1

| Year | Report Period | RU Employed Non Conserving Rate Structure | RU Meets BMP 11 Coverage Requirement |
|---|---|---|---|
| 1999 | 99-00 | NO | YES |
| 2000 | 99-00 | NO | YES |
| 2001 | 01-02 | NO | YES |
| 2002 | 01-02 | NO | YES |
| 2003 | 03-04 | NO | YES |
| 2004 | 03-04 | NO | YES |

---

**BMP 11 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# BMP 12 Coverage: Conservation Coordinator

Reporting Unit: **Sacramento County Water Agency - Wholesale**

Reporting Period: **03-04**

## MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as" implementation during report period? No

---

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

---

### Test for Compliance

| Report Year | Report Period | Conservation Coordinator Position Staffed? | Total Staff on Team (incl. CC) |
|---|---|---|---|
| 1999 | 99-00 | NO | |
| 2000 | 99-00 | NO | |
| 2001 | 01-02 | YES | 2 |
| 2002 | 01-02 | YES | 2 |
| 2003 | 03-04 | YES | 2 |
| 2004 | 03-04 | YES | 2 |

---

**BMP 12 COVERAGE STATUS SUMMARY:**

**Water supplier is meeting coverage requirements for this BMP.**

# APPENDIX F

SAMPLE WATER SHORTAGE ADVISORY NOTICE AND SAMPLE WATER SHORTAGE CONTINGENCY PLAN

# WATER SHORTAGE ADVISORY

Sacramento County Water Agency

Date

**WARNING: Failure to follow this advisory could the assessment of civil penalties.**

Due to the recent event (e.g., flood, fire, earthquake or other emergency situation), the water delivery capabilities of the water system serving your home has been significantly impaired. In order to maximize public health and fire protection, the Sacramento County Water Agency must temporarily impose the following WATER USE RESTRICTIONS in the (SERVICE AREA) until further notice:

1. Water delivered by the public water system MAY be used only for drinking, cooking, ice making, toilet flushing, showering, bathing, tooth brushing, and other sanitary purposes;

2. Water delivered by the public water system MAY NOT be used for outside landscape irrigation;

3. Water delivered by the public water system MAY NOT be used for filling or refilling swimming pools or hot tubs;

4. Water delivered by the public water system MAY NOT be used for washing cars, sidewalks, driveways or gutters except to abate an immediate sanitary hazard.

*OPTIONAL:*
Potable water is available at the following locations:

Please bring clean water containers (5 gallons maximum capacity).

For more information call:

**Sacramento County Water Agency at (916) 875-6426 or 874-6851**

**California Department of Health Services at (916) 229-3126**

**Sacramento County Environmental Management Department at (916) 875-5000**

# CANCELLATION OF WATER SHORTAGE ADVISORY

Sacramento County Water Agency

Date

On (DATE), you were informed of temporary water restrictions that were imposed in Sacramento County Water Agency's (SERVICE AREA) to abate an emergency water shortage problem due to (EMERGENCY).

This notice is being distributed to inform the water users in (SERVICE AREA) that the water shortage problem has been abated and that THE TEMPORARY WATER USE RESTRICTIONS HAVE BEEN LIFTED. Please remember, however, that is always a good idea to conserve water no matter what the water supply conditions may be.

The water agency wishes to acknowledge and thank all of the water users in (SERVICE AREA) for their patience and cooperation throughout this ordeal.

For more information call:

**Sacramento County Water Agency at (916) 875-6426 or 874-6851**

**California Department of Health Services at (916) 229-3126**

**Sacramento County Environmental Management Department at (916) 875-5000**

P:\Shared Folders\WSO&M\Regulatory Doc's & Rpts\Disaster Response Plan\Appendices\Conserve.doc

# SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
## Sunrise Service Area

## Water Shortage Contingency Plan - Stages of Action

### *STAGE 1 – Normal Supply*

Stage 1 of the water shortage contingency plan is the normal operations stage of action. No new water conservation regulations are in effect. Existing water conservation measures are listed below. Customers are notified of the potential water supply shortage and the necessity for conservation. The penalties for water wasting are explained as well as other water shortage stages. A telephone hotline is established for anonymous reporting of violators (875-6H20). Water conservation patrols will be in effect to encourage responsible water use.

- **Odd/Even Irrigation for Residential & Commercial.**
  - Addresses ending in an **odd** number (1,3,5,7,9)
    - Irrigate on Tuesday, Thursday, and Saturday
  - Addresses ending in an **even** number (0,2,4,6,8)
    - Irrigate on Wednesday, Friday, and Sunday
  - NO IRRIGATION ON MONDAYS
- **Irrigation Hours.** No landscape irrigation shall be permitted between the hours of noon and 6:00 p.m. in the evening.
- **Runoff.** Irrigation shall not be allowed to run off to adjoining property or to the roadside ditch or gutter.
- **Hoses.** Open hoses are not permitted. Automatic shutoff nozzles are required.
- **Washing Driveways and Other Paved Areas.** Use of water to clean sidewalks, driveways, or patios is not permitted. Washing of streets and commercial parking lots with a hose is not permitted, except to alleviate immediate fire or sanitation hazards.
- **Water Leaks.** Leaking pipes, fixtures, or sprinklers shall be repaired promptly.
- **Serving of Water.** Restaurants shall serve water to customers only upon special request.
- **Pools, Ponds, and Fountains.** All swimming pools, ponds, and fountains shall be equipped with re-circulating pumps.

PENALTIES FOR WATER WASTING

- First violation – Customer is notified of violation.
- Second violation – Written warning sent to customer.
- Subsequent violations - $100 fine.

# SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
## Sunrise Service Area

## Water Shortage Contingency Plan - Stages of Action

### *STAGE 2 – Water Alert*

Stage 2 becomes effective in the event that there is a probability that the District's supply or distribution system will not be able to meet all the water demands of its customers under Stage 1. In addition to the measures implemented in Stage 1, irrigation is restricted to 3 days a week in 2-hour time slots, as described below. Penalties for water wasting are strengthened. Customers are notified of the stage 2 water shortage and more severe penalties, and customers are asked to voluntarily reduce water usage 20%.

- **Irrigation Zones.** Irrigation zones are established by geographic area as shown on the attached map. Irrigation shall be permitted by zone in accordance with the schedule:

| | | Time of Day | | |
|---|---|---|---|---|
| Zone | Watering Days | 6-8pm | 8-10pm | 10pm-12am |
| 1 | Sun, Wed, Fri | | | |
| 3 | Sun, Wed, Fri | | | |
| 5 | Sun, Wed, Fri | | | |
| 2 | Tue, Thu, Sat | | | |
| 4 | Tue, Thu, Sat | | | |
| 6 | Tue, Thu, Sat | | | |

- **Construction Water.** No potable water from the District's system shall be used for dust control, compaction, or trench jetting.

PENALTIES FOR WATER WASTING

- First violation - Customer is notified of violation.
- Second violation - Written warning sent to customer.
- Third violation - $200 fine and customer is scheduled for a mandatory water audit.
- Fourth violation - $500 fine and a flow restriction device is installed.
- Fifth violation - $500 fine and the water service is shut off. Connection fee assessed to re-activate water service.

## SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
## Sunrise Service Area

## Water Shortage Contingency Plan - Stages of Action

### *STAGE 3 – Water Warning*

Stage 3 is triggered in the event that the District's supply or distribution system will not be able to meet all the water demands of its customers under Stage 2. In addition to the measures implemented in Stages 1and 2, water use is further restricted and irrigation is restricted to 2 days a week in 2-hour time slots, as described below. Customers are notified of the stage 3 water shortage and asked to voluntarily reduce water usage 30%.

- **Irrigation Zones.** Landscape Irrigation shall be permitted by zone in accordance with the schedule:

| | | Time of Day | |
|---|---|---|---|
| Zone | Watering Days | 8-10pm | 10pm-12am |
| 1 | Tue, Fri | | |
| 4 | Tue, Fri | | |
| 2 | Wed, Sun | | |
| 5 | Wed, Sun | | |
| 3 | Thu, Sat | | |
| 6 | Thu, Sat | | |

- **Pools, Ponds, and Fountains.** Water use for ornamental ponds and fountains is prohibited. No potable water from the District's system shall be used to fill or refill new swimming pools, artificial lakes, ponds, or streams until the WATER WARNING has been declared over.
- **Main Flushing.** Main flushing allowed only for emergency purposes.

# SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
## Sunrise Service Area

## Water Shortage Contingency Plan - Stages of Action

### *STAGE 4 – Water Crisis*

Stage 4 is triggered in the event that the District's supply or distribution system will not be able to meet all the water demands of its customers under Stage 3. In addition to the measures implemented in Stages 1, 2, and 3, new connections are prohibited and irrigation is restricted to 2 days a week in 1-hour time slots, as described below. Customers are notified of the stage 4 water shortage and asked to voluntarily reduce water usage 40%.

- **Irrigation Zones.** Landscape Irrigation shall be permitted by zone in accordance with the schedule:

| | | Time of Day | |
|---|---|---|---|
| Zone | Watering Days | 8-9pm | 9-10pm |
| 1 | Tue, Fri | | |
| 4 | Tue, Fri | | |
| 2 | Wed, Sun | | |
| 5 | Wed, Sun | | |
| 3 | Thu, Sat | | |
| 6 | Thu, Sat | | |

- **New connections.** No new connections will be added to the system until the WATER CRISIS has been declared over.
- **System pressures.** Maximum system operating pressure will be reduced to 40 psi.
- **Water allotments.** Customer water allotments are determined. Water usage above water allotment billed at 150% of normal water rate.

# SACRAMENTO COUNTY WATER MAINTENANCE DISTRICT
## Sunrise Service Area

## Water Shortage Contingency Plan - Stages of Action

### *STAGE 5 – Water Emergency*

Stage 5 is triggered in the event that the District's supply or distribution system will not be able to meet all the water demands of its customers under Stage 4. In addition to the measures implemented in Stages 1, 2, 3, and 4, irrigation is restricted to one day a week in a 1-hour time slot, as described below. Customers are notified of the stage 5 water shortage and asked to voluntarily reduce water usage 50%.

- **Irrigation Zones.** Landscape Irrigation shall be permitted by zone in accordance with the schedule:

| | | Time of Day |
|---|---|---|
| Zone | Watering Day | 9-10pm |
| 1 | Tue | |
| 4 | Wed | |
| 2 | Thu | |
| 5 | Fri | |
| 3 | Sat | |
| 6 | Sun | |

# APPENDIX G

SCWA BOARD OF DIRECTORS BOARD LETTER

**NO 465 Public Notice**

A public hearing to consider the adoption of the Zone 41 Urban Water management plan will be held on December 6 at 10:15 a.m. at the Sacramento County Board of Supervisors Chambers, County Administration Center, 700 H Street, Sacramento, California. For more information, contact the Department of Water Resources at 874-6851

2TI Nov. 22 & 29, 2005

Public Notice published in the Sacramento Bee on November 22, 2005 and November 29, 2005 prior to the December 6, 2005 public hearing.

# SACRAMENTO COUNTY WATER AGENCY
# CALIFORNIA

**54**

For the Agenda of:
December 6, 2005
Timed Item: 10:15 am

APPROVED
BOARD OF SUPERVISORS
DEC 0 6 2005
By Cindy H. Turner
Clerk of the Board

To: Board of Directors
Sacramento County Water Agency

From: Department of Water Resources

Subject: Public Hearing For The Adoption Of The Zone 41 2005 Urban Water Management Plan Update.

Contact: Darrell Eck, Senior Civil Engineer, 874-5039

**Overview**
The California Water Code (Water Code) §10620 requires that every urban water supplier prepare and adopt an Urban Water Management Planning (UWMP). Once adopted, Water Code §10621 requires that the UWMP be updated every five years on or before December 31, in years ending in five and zero. On October 2, 2001, your Board adopted the Sacramento County Water Agency's (Water Agency) 2000 UWMP. The Water Agency's 2005 UWMP update (available for viewing at the Clerk of the Board's office or on-line at www.msa.saccounty.net/waterresources) incorporates the latest planning information developed by the Water Agency and satisfies all current requirements set forth in the Water Code.

**Recommendations**
1. Open public hearing on the adoption of the 2005 Zone 41 UWMP update.
2. Close the public hearing.
3. Adopt the Zone 41 UWMP update.

**Measures/Evaluation**
Measures/Evaluation are not applicable to this agenda item.

**Fiscal Impact**
The adoption of the UWMP has no direct fiscal impact. However, completion of the update will allow the Water Agency to qualify for future applications for State administered grants, loans and drought assistance.

**BACKGROUND:**

All urban water suppliers in the State of California are required to prepare an UWMP and complete updates at least once every five years on or before December 31, in years ending in five and zero. As defined by the Water Code (§10617) an "urban water supplier" is a supplier, either publicly or privately owned, that provides water to more than 3,000 customers or supplies more than 3,000 acre-feet of water annually on a wholesale or retail basis or both. Currently, Zone 41 provides water service to nearly 40,000 connections and in 2004 served approximately 36,000 acre-feet of potable drinking water.

The State considers the UWMP a long-range planning document for water supply, a source of data for development of General Plans and Regional Water Plans, providing key components in developing Integrated Regional Water Management Plans, and as a source of information for Water Supply Assessments (Senate Bill 610) Water Code §10613 *et seq.* (*Added by* Stats. 2001, c. 643), and Written Verifications of Supply (Senate Bill 221) Water Code §66473.7 (*Added by* Stats. 2001, c. 642). The State also requires an approved UWMP to qualify for State sponsored grants and loans.

On October 2, 2001, your Board approved the Zone 41 2000 UWMP. This UWMP contained the latest information on available water supplies, water supply reliability, water conservation, water shortage contingencies, and recycled water usage available at that time.

Since the approval of the 2000 UWMP the Water Agency has been or is currently involved in various planning efforts that have a bearing on the UWMP. These efforts include the Zone 40 Groundwater Management Plan (October 2004), the Zone 40 Water Supply Master Plan (February 2005), the Central and South Sacramento County Integrated Regional Water Management Plan Functionally Equivalent Document (July 2005), and the Central Sacramento County Groundwater Management Plan (in progress).

**DISCUSSION:**

The updated UWMP includes the entire retail and wholesale area of Zone 41 (i.e., Walnut Grove, Hood, Arden Park Vista, Northgate, Southwest Tract, Zone 50, and Zone 40). Those cities (Sacramento, Elk Grove, Rancho Cordova, and Folsom) and other agencies that have or will purchase water from or sell water to the Water Agency or have jurisdictional boundaries that overlap Zone 41's boundaries were notified on September 9 and October 17, 2005 of the Water Agency's intention of updating the UWMP. These letters indicated the projected adoption date of the UWMP and provided these agencies an opportunity to participate in the development of the UWMP prior to its adoption. The UWMP update was discussed at the October 27, 2005 meeting of the Central Sacramento County Groundwater Forum. Stakeholders were invited to participate in the development of the document by providing comments. Notice of the public hearing was published in the Sacramento Bee on November 22 and 29, 2005. A list of the cities and agencies invited to participate in development of the updated UWMP are summarized in Attachment A.

The updated UWMP incorporates the latest planning information developed by the Water Agency and satisfies all current requirements set forth in the Water Code.

Respectfully submitted,

for Keith DeVore, Director
Department of Water Resources

Approved:

Terry Schutten
County Executive

By: _____
Cheryl Creson, Administrator
Municipal Services Agency

Attachments
1. Zone 41 2005 Urban Water Management Plan

cc:
Keith DeVore, DWR
Herb Niederberger, DWR
John Coppola, DWR
Darrell Eck, DWR
Dave Underwood, DWR
Mike Crooks, DWR
Dennis Rogers, Building Industry Association
Christine Crawford, City Of Elk Grove Planning Dept.
Paul Junker, City of Rancho Cordova Planning Dept.
Robert Sherry, Director, Sacramento County Planning and Community Development
Mike Kenny, Elk Grove Water Service
Dan Sherry, Department of Utilities, City of Sacramento