Fair Oaks Water District

2010 Urban Water Management Plan

Final

Kennedy/Jenks Consultants

September 2011

Kennedy/Jenks Consultants

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Fair Oaks Water District 2010 Urban Water Management Plan

September 2011

Prepared for

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Abbreviations

µg/L	micrograms per liter
ac-ft	acre-feet
ac-ft/yr	acre-feet per year
Act	Urban Water Management Planning Act
ACWA	Association of California Water Agencies
AFRPA	Air Force Real Property Agency
AWWA	American Water Works Association
BMPs	best management practices
CCR	Consumer Confidence Report
CCSCE	Continuing Study of the California Economy
CDP	Census Designated Place
CDPH	California Department of Public Health
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfs	cubic feet per second
CII	commercial, industrial, institutional
CIMIS	California Irrigation Management Information System
COG	Council of Governments
CUWCC	California Urban Water Conservation Council
District (or FOWD)	Fair Oaks Water District
DMM	demand management measure
DOF	California State Department of Finance
DRU	Demographic Research Unit
DWR	Department of Water Resources (California)

DWR Guidebook	Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan
EBMUD	East Bay Municipal Utility District
ETo	evapotranspiration
FOWD (or District)	Fair Oaks Water District
GMP	Groundwater Management Plan
gpcd	gallons per capita day
gpm	U.S. gallons per minute
HCD	State Department of Housing and Community Development
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IGSM	Integrated Groundwater and Surface Water Model
MCL	maximum contaminant level
mg/L	milligrams per liter
MIE	Media in Education
MOU	Memorandum of Understanding
MSL	Mean Sea Level
MTBE	methyl tertiary-butyl ether
MTP	Metropolitan Transportation Plan
N/A	not available, not applicable
NAWQA	National Water Quality Assessment
NDMA	N-nitrosodimethylamine
NIE	Newspapers in Education
PCE	tetrachloroethene
PCWA	Placer County Water Agency
PHG	public health goal
RHNA	Regional Housing Needs Allocation

RWA	Regional Water Authority
RWEP	Regional Water Efficiency Program
SACOG	Sacramento Area Council of Governments
SACSIM	Sacramento Regional Activity-Based Simulation Model
SAWWA	Sacramento Area Water Works Association
SBX7-7	Senate Bill x7-7, The Water Conservation Act of 2009
SGA	Sacramento Groundwater Authority
SJWD	San Juan Water District
SMUD	Sacramento Municipal Utility District
SRCSD	Sacramento Regional County Sanitation District
SRWTP	Sacramento Regional Wastewater Treatment Plant
SWRCB	State Water Resources Control Board
TAZ	Traffic Analysis Zone
TCE	trichloroethene
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VOC	volatile organic compounds
WRCC	Western Regional Climate Center
WTP	Water Treatment Plant
WY	water year

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Definitions

Chapter 2, Part 2.6, Division 6 of the California Water Code provides definitions for the construction of the Urban Water Management Plans. Appendix A contains the full text of the Urban Water Management Planning Act.

CHAPTER 2. DEFINITIONS

Section 10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

Section 10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

Section 10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

Section 10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

Section 10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

Section 10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, and reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

Section 10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

Section 10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

Section 10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

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Chapter 1: Plan Preparation

1.1 Background

This Urban Water Management Plan (UWMP) has been prepared for the Fair Oaks Water District (District or FOWD) in compliance with Division 6, Part 2.6, of the California Water Code, Sections 10608 through 10657 as last amended by Senate Bill No. 7 (SBX7-7), the Water Conservation Act of 2009. The original bill requiring preparation of an UWMP was enacted in 1983. SBX7-7, which became law in November 2009, requires increased emphasis on water demand management and requires the State to achieve a 20 percent reduction in urban per capita water use by December 31, 2020.

Urban water suppliers having more than 3,000 service connections or supplying more than 3,000 acre-feet per year (ac-ft/yr) at retail or wholesale are required to submit a UWMP every 5 years to the California Department of Water Resources (DWR). The UWMP typically must be submitted by December 31 of years ending in 0 and 5 however SBX7-7 extended the UWMP deadline to July 1, 2011 to provide for development by DWR of required evaluation methodologies for determining water demand reduction targets. This 2010 UWMP is an update to the 2005 plan, which was approved by DWR on March 30, 2007.

The District's water use reduction targets were developed based on Method 1 (20 percent reduction) as described by SBX7-7 and supplemental guidance from DWR.

The portion of the Urban Water Management Planning Act (Act) that describes the purpose and intent of the UWMP states and declares the following:

Section 10610.2.

(a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

Section 10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

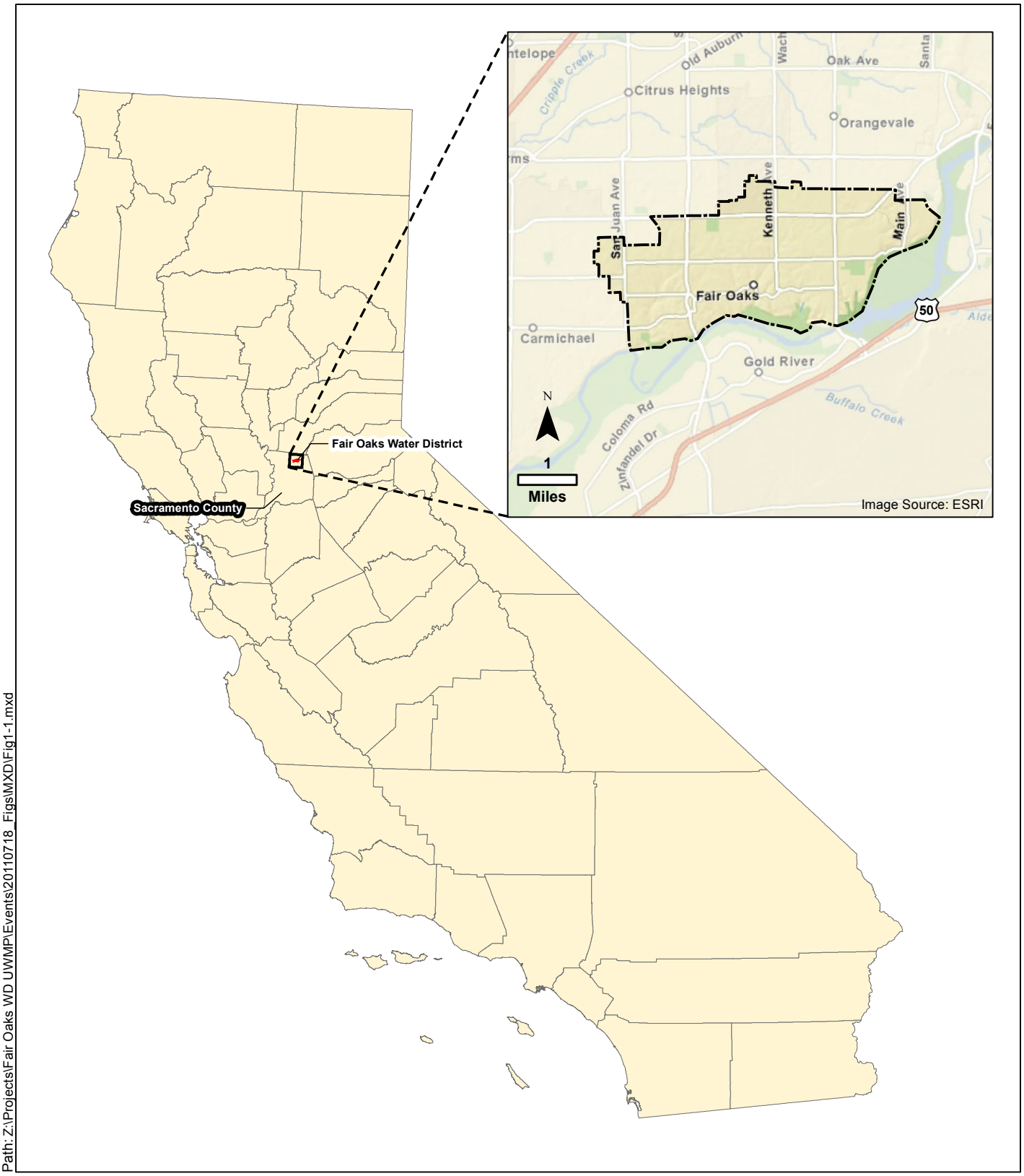
(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

1.2 System Overview

The District is a California special district providing retail sale of potable water primarily to residential and commercial customers. The District serves approximately 14,450 connections in the northeast portion of unincorporated Sacramento County, California. Figure 1-1 illustrates the District's service area and its location relative to other water purveyors. The service area is approximately 6,240 acres and is entirely within the unincorporated area of Sacramento County. The service area is bounded by San Juan Avenue on the west, Madison and Pershing Avenues on the north, Walnut and Main Avenues on the east, and parts of Folsom Lake State Recreation Area and Sacramento County's American River Parkway on the south. The proposed Gum Ranch development includes an area north of Madison Avenue and east of Kenneth Way was annexed into the District's service area in 2007.

1.3 Notice of Document Use

The District is committed to implementation of the projects, plans, and discussions provided within this document. The 2010 Plan is intended to serve as a general, flexible, and open-ended document that periodically can be updated to reflect changes in water supply trends, and conservation and water use efficiency policies. This Plan, along with other District planning documents, will be used by District staff to guide water use and management efforts through the year 2015, when the Plan is required to be updated.



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Legend

Fair Oaks Water District Boundary

N

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Miles

Kennedy/Jenks Consultants

Fair Oaks Water District
2010 Urban Water Management Plan

Fair Oaks Water District Location Map

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September 2011

Figure 1-1

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1.4 Agency Coordination and Public Participation

The 2010 UWMP requirements for agency coordination and public participation include specific timetables and requirements as presented in this chapter. The required elements of the Act are as follows:

Section 10620.

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

Section 10621.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, 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.

Section 10635.

(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.

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.

Table 1-1 provides the agencies with which coordination occurred while preparing this 2010 UWMP. The initial coordination included the distribution of letters of notification and requests for information followed by telephone correspondence as necessary to obtain supporting data for the preparation of the UWMP. Table 1-1 also includes a checklist of agencies that have been provided the notifications and access to the documents.

Table 1-1: Coordination with Agencies								
Agency	**Sent 60-Day Notification**	**Contacted for Assistance**	**Participated in UWMP Development**	**Received Copy of the Draft**	**Commented on the Draft**	**Sent Notice of Intent to Adopt**	**Attended Public Hearing**	**Not Involved/ No Information**
City of Citrus Heights	✓	✓		✓		✓		
City of Folsom	✓			✓		✓		
City of Rancho Cordova	✓			✓		✓		
Regional Water Authority / Sacramento Groundwater Authority			✓	✓				
Sacramento County	✓			✓		✓		
Golden State Water Company				✓				
Carmichael Water District				✓				
Citrus Heights Water District				✓				
Orange Vale Water Company				✓				
Sacramento Suburban Water District				✓				
San Juan Water District		✓	✓	✓			✓	
Fair Oaks Chamber of Commerce				✓				
Sacramento Regional County Sanitation District		✓	✓	✓				

Note:
This table is based on DWR's *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* (DWR Guidebook) Table 1.

1.5 Plan Adoption and Submittal

Plan adoption and submittal requirements are detailed in the following sections of the Act:

Section 10621.

(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)

Section 10642. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

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.

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.

The Act requires the encouragement of public participation and a public hearing prior to the adoption of the 2010 Plan. In order to reach the "diverse social, cultural, and economic elements of the population" within the District's service area, a public hearing was held on September 12, 2011 at the District Office in Fair Oaks, California. This session was held for review and comment of the draft UWMP before adoption by the District. Legal public notices for the public hearing and availability of the plan for review and comment were published in advance in the Sacramento Bee in accordance with Government Code Section 6066.

The public hearing provided an opportunity for the District's customers, residents, and employees in the service area to learn about the District's water supply and the plans to continue providing reliable, safe, and high-quality water into the future. The resolution adopting the UWMP by the Board of Directors is included in Appendix B.

In addition, notifications of preparation of the plan were also provided to cities and counties within which the District provides water at least 60 days in advance of the public hearing as required by the Act. Copies of the draft plan were available to the public for review at the District's office and posted on the District's website. Appendix B contains the following:

- Copy of the hearing notice from a local newspaper,
- 60-day notifications and public hearing notifications provided to cities and counties.

1.6 UWMP Preparation

The District prepared this UWMP with the assistance of its consultant, Kennedy/Jenks Consultants, as permitted by the following section of the Act.

> *Section 10620.*
>
> *(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.*

During the preparation of the UWMP, documents that have been prepared over the years by District and other entities were reviewed and information from those documents incorporated, as applicable, into this UWMP. The list of references is provided in Chapter 9.

1.7 UWMP Implementation

> *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.*

The District is committed to the implementation of this UWMP concurrent with the scheduled activities identified herein as required by Section 10643 of the Act. The District's staff will plan and implement responses identified in this document and other key planning efforts to proactively address water supply reliability challenges. Furthermore, the District's conservation coordinator oversees the implementation of Demand Management Measures (DMMs) through the District's participation in the Council's Memorandum of Understanding (MOU).

1.8 Content of the UWMP

This UWMP addresses all subjects required by Section 10631 of the Act as defined by Section 10630, which permits "levels of water management planning commensurate with the numbers of customers served and the volume of water supplied." All applicable sections of the Act are discussed in this UWMP, with chapters of the UWMP and Guidebook Checklist cross-referenced against the corresponding provision of the Act in Table 1-2. Additionally, a completed copy of the 2010 Urban Water Management Plan Checklist organized by subject is included in Appendix C.

Table 1-2: Summary of UWMP Chapters and Corresponding Provisions of the California Water Code			
Chapter	**Corresponding Provisions of the Water Code**		**UWMP Guide Book Checklist No.**
Chapter 1: Plan Preparation	10642	Public participation	55
	10643	Plan implementation	58
	10644	Plan filing	59
	10645	Public review availability	60
	10620 (a)–(e)	Coordination with other agencies; document preparation	4
	10621 (a)–(c)	City and county notification; due date; review	6
	10620 (f)	Resource optimization	5
Chapter 2: System Description	10631 (a)	Area, demographics, population, and climate	8-12
Chapter 3: Water Use	10608	Urban water use targets	1
	10631 (e), (k)	Water use, data sharing	25 and 34
Chapter 4: Water Supply	10631 (b)–(d), (h), (k)	Water sources, reliability of supply, transfers and exchanges, supply projects, data sharing	13-21, 24, 33
	10631 (i)	Desalination	31
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Chapter 5: Water Quality	10634	Water quality impacts on reliability	52
Chapter 6: Water Service Reliability	10635 and 10631	Water service reliability, and reliability of supply	30
Chapter 7: Conservation Program and Demand Management Measures	10631 (f)–(g), (j) and 10631.5	Conservation Program and DMM implementation status	26-29, 32
Chapter 8: Water Shortage Contingency Plan	10632	Water shortage contingency plan	35-43

1.9 Resource Optimization

Section 10620(f) of the Act asks urban water suppliers to evaluate water management tools and options to maximize water resources and minimize the need for imported water from other regions. The District understands the limited nature of water supply in California and is committed to optimizing its available water resources. For this reason, the District has strived to maintain reliable water supply from local resources, namely the American River watershed (including Folsom Reservoir) and groundwater. The District maintains a robust portfolio of water supply options that provide for true conjunctive use of surface and groundwater resources.

Additionally, the District is committed to collaborating with neighboring water agencies, the San Juan Water District Family of water agencies, and other organizations that seek to promote the beneficial use of limited water resources in the Sacramento region. The District is a regular participant in regional water resources planning efforts is signatory to the Water Forum Agreement, involved in Water Forum Successor Effort, Regional Water Authority, and the Sacramento Groundwater Authority.

Additionally, the District has implemented a comprehensive water conservation program including recent completion of meter retrofits on all of its water service connections. In an effort to expand the breadth of offered programs, the District partners with its wholesale supplier, energy utilities, and other agencies that support water conservation programs.

Chapter 2: System Description

The water system description requirements are detailed in the following section of the Act:

> *Section 10631*
>
> *(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.*

2.1 Area

The District serves approximately 14,450 connections in the northeast portion of Sacramento County, California. Figure 2-1 illustrates the District's service area and their location relative to other water purveyors. The service area is approximately 6,240 acres and is entirely within the unincorporated area of Sacramento County. The service area is generally bounded by San Juan Avenue on the west, Madison and Pershing Avenues on the north, Walnut and Main Avenues on the east, and parts of Folsom Lake State Recreation Area and Sacramento County's American River Parkway on the south. The proposed Gum Ranch development includes an area north of Madison Avenue and east of Kenneth Way was annexed into the District's service area in 2007.

2.2 Demographics

The Fair Oaks Census Designated Place (CDP) makes up the most of the District's service area and therefore was chosen as demographically representative of the District's service area. According to 2010 U.S. Census Data, the median age of Fair Oaks residents is 45.8 years. Fair Oaks CDP has an average household size of 2.37 and a median household income of $63,252.

The District's service area is primarily characterized by residential land use with some commercial and institutional connections. Approximately 95 percent of the land area is classified as residential use. The overall density of residential development within the District is relatively low with many of the lot sizes ranging from 1.0 to 1.5 acres. In the future, some of these large lots may choose to split into multiple lots, thus increasing the population of the District and creating the need for additional service connections.

2.3 Population, Housing, and Employment

Population, housing, and employment projections were developed for the District using the Sacramento Area Council of Governments (SACOG) population, housing and employment data. SACOG's methodology is described below, followed by the derivation of population projections for the District service area. The projections provided in this report are the final projections used in the Metropolitan Transportation Plan for 2035 (MTP), adopted by SACOG in 2008. The current population projections differ from previous projections developed in 2005 by the use of new software. SACOG now projects demographic information for the 5-year, 10-year, and approximately 25-year increment, while 5-year increments were previously used. Both the previous and current projections use 2000 U.S. Census data.

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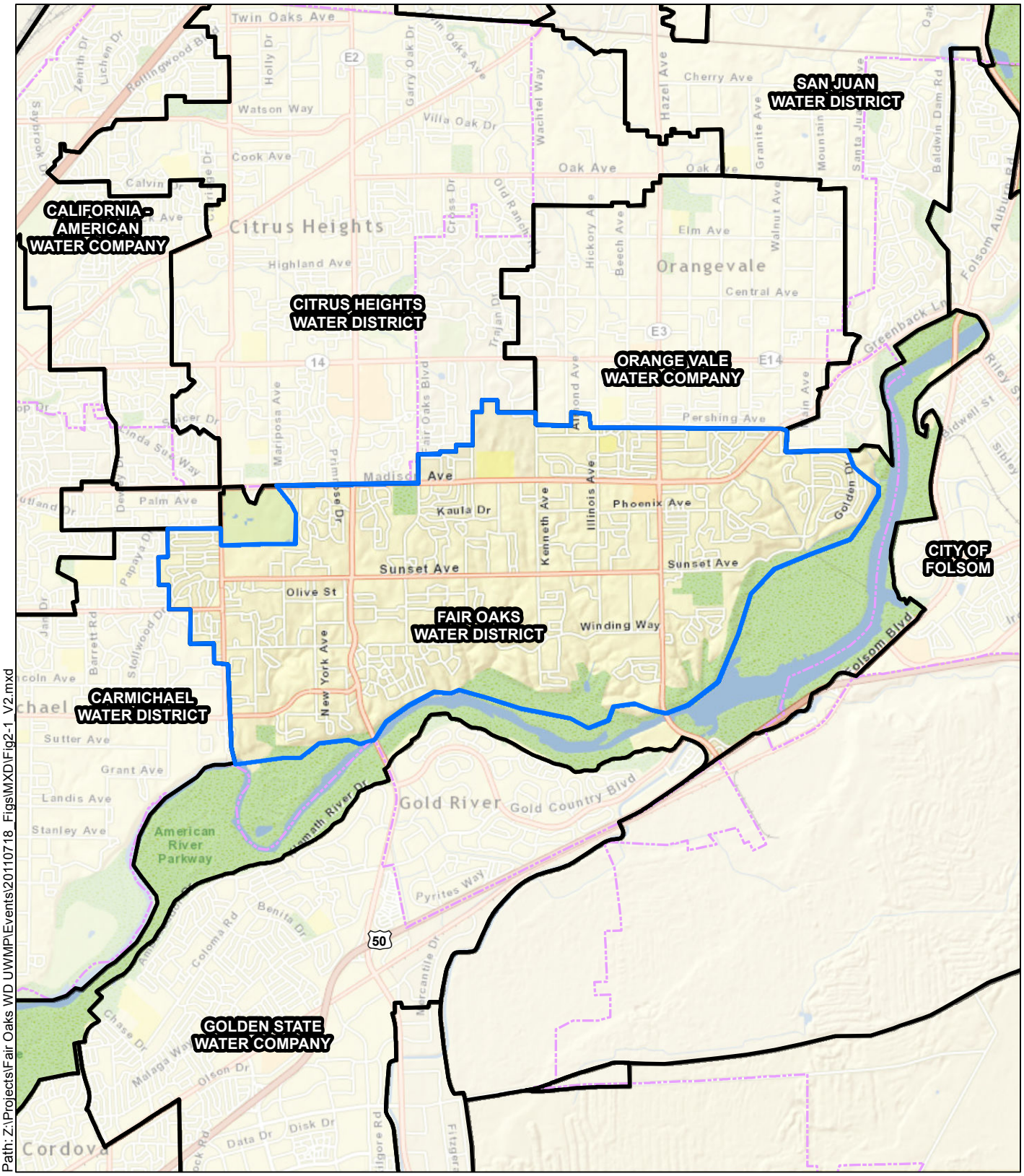

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Image Source: ESRI

Legend

- Fair Oaks Water District Boundary
- Water Purveyor Boundary
- City Boundary

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Feet

Kennedy/Jenks Consultants

Fair Oaks Water District
2010 Urban Water Management Plan

Fair Oaks Water District Service Area

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September 2011

Figure 2-1

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2.3.1 Historical Population Estimates

Annual estimates of historical population between 2000 and 2010 required for SBX7-7 are provided in Table 2-1. The population estimates were developed using a methodology consistent with DWR *Technical Methodology 2: Service Area Population* (DWR 2011). The District is considered a Category 2 water supplier. The District's historical population data was linearly interpolated between the 2000 and 2010 Census populations. The District's service area Geographic Information System (GIS) information is available through database maintained by Sacramento Groundwater Authority (SGA).

Census tract data provided by the U.S. Census Bureau was used for estimating population. The District boundary contains multiple census tracts, many of which have boundaries that do not coincide exactly with the service area boundaries. The historical population estimate analysis consisted of superimposing the service area boundary over census tract boundaries, identifying the applicable overlapping census tracts, and developing a percentage estimate for each overlapping area. For a census tract 100 percent within the service area boundary, it was assumed that 100 percent of the associated census tract population data was applicable to the District. For areas where the overlap was not exact, the area of overlap as a percentage was applied to the data to develop an estimate of applicable population. Appendix I, Table I-1 lists the census tracts with a corresponding estimate of what percent of each tract lies within the District.

Table 2-1: Fair Oaks Water District Historical Population

Year	Service Area Population
2000	36,951[1]
2001	36,879
2002	36,806
2003	36,734
2004	36,661
2005	36,589
2006	36,516
2007	36,444
2008	36,371
2009	36,299
2010	36,226[1]

Note:

1. Population for years 2000 and 2010 are based on 2000 and 2010 Census data.

2.3.2 SACOG Population Projection Development Methodology

The population projections data are derived from the 2000 U.S. Census which forms a baseline for local data projections prepared by SACOG. Several methodologies including the Demographic Model, Economic Model, Trend Base, Land Use Model and General Plan Model were used in developing the projections at various geographical categories. The methodology

for these projections incorporates regional growth targets provided by the Center for the Continuing Study of the California Economy (CCSCE) and DB Consulting. Projection data sources include: the U.S. Census Bureau's 2000 census of population and housing, annual housing and population estimates from the California State Department of Finance (DOF), Demographic Research Unit (DRU), Info USA employment data, regional growth targets data from the CCSCE, and the General Plan from the Sacramento Region Blueprint Project.

Year 2005 is the new socio-economic baseline, which represents the most important departure from the previous projection set in methodology and results. The projection methodology employed in previous projections (in 2000) is different from the current recent projections (2008). The major difference is that household population estimates and projections are now generated through a population synthesis process run by a regional travel demand forecasting model, the Sacramento Regional Activity-Based Simulation Model (SACSIM).

A detailed explanation of the population projection process employed by SACOG can be found in the document *Projections of Employment, Population, Households, and Household Income in the SACOG Region for 2000-2050*.

2.3.3 Projected Population

Unlike the U.S. Census Bureau, SACOG utilizes Traffic Analysis Zones (TAZ) as the smallest discrete area for which population projections are developed. The District service area boundary contains multiple TAZs, many of which have boundaries that do not coincide exactly with service area boundaries. The population projection analysis consisted of superimposing service area boundaries over TAZ boundaries, identifying the applicable overlapping TAZ, and developing a percentage estimate for each overlapping area. For a TAZ 100 percent within the service area boundaries, it was assumed that 100 percent of the associated TAZ population data was applicable to the District service area. For areas where the overlap was not exact, the area of overlap as a percentage was applied to the data to develop an estimate of applicable population. Appendix I Table I-1 lists the TAZs with a corresponding estimate of what percent of each TAZ lies within the District service area.

It was typically assumed that the population was distributed uniformly within all parts of that TAZ unless maps indicated non-uniform concentrations. In these cases, population estimates were either increased or decreased as applicable to match the existing land use. This report uses SACOG demographic data to determine population, household, and employment growth rate projections for the years 2015 to 2035. Since the SACOG projections were provided for the years 2013, 2018, and 2035, growth rates were applied over the closest applicable time interval. For example, the projected 38,285 population in 2025 was estimated by applying a 6 percent growth rate between 2018 and 2035 and a 3 percent growth rate between 2013 and 2018 to the projected 2015 population. Appendix I, Table I-2 contains all of the SACOG's historic and projected demographic data for each TAZ for those years. Figure 2-2 details the TAZs within the District service area.

To ensure consistency between the historical and projected population data required for this plan, projections for 2015 through 2035 were adjusted relative to the 2010 population benchmark using the applicable SACOG percentage growth rates in each category. For this reason, SACOG projections after 2000 for the TAZs do not correlate precisely with the estimates included in this Plan.

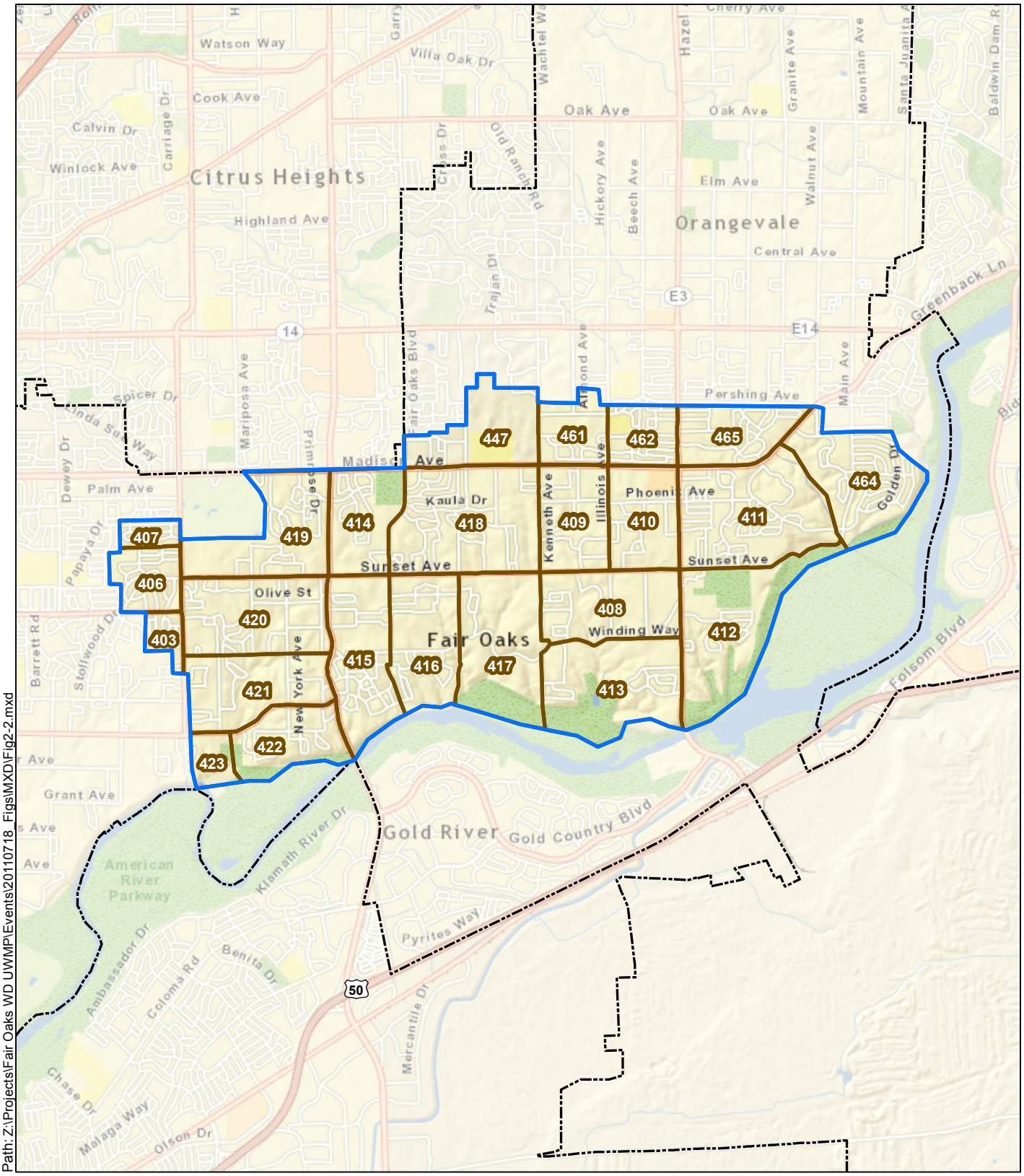

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Image Source: ESRI

Legend

- Fair Oaks Water District Boundary
- TAZ Boundary within Service Area
- City Boundary

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Kennedy/Jenks Consultants

Fair Oaks Water District
2010 Urban Water Management Plan

Fair Oaks Water District Service Area with TAZ Boundary

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September 2011

Figure 2-2

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A summary of historic and projected population within the District service area (based on SACOG data) is presented in Table 2-2 and illustrated in Figure 2-3. The District's 2005 Plan anticipated population to steadily increase through 2030 and number of connections stabilizing after 2015 as the District approaches buildout. The 2005 UWMP identified the Gum Ranch Development within the District scheduled for completion in 2010. Due to the recent economic downturn, approximately 340 single family residential units have yet not been constructed. Completion of the entire Gum Ranch development is not foreseeable in the next 5-years. The current population projections anticipate completion of the Gum Ranch development over the next 10 years, with limited remaining population growth resulting from infill lot splits of existing developed parcels.

Table 2-2: FOWD Historical and Projected Population

Year	Service Area Population	Data Source
2005	36,589	Calculated
2010	36,226[(2)]	Census
2015	36,879	SACOG
2020	37,930	SACOG
2025	38,287	SACOG
2030	38,644	SACOG
2035	39,001	SACOG

Notes:
1. This table is based on the DWR Guidebook Table 2.
2. Based on 2010 Census data.
3. Dashed line represents division between historic and projected data.

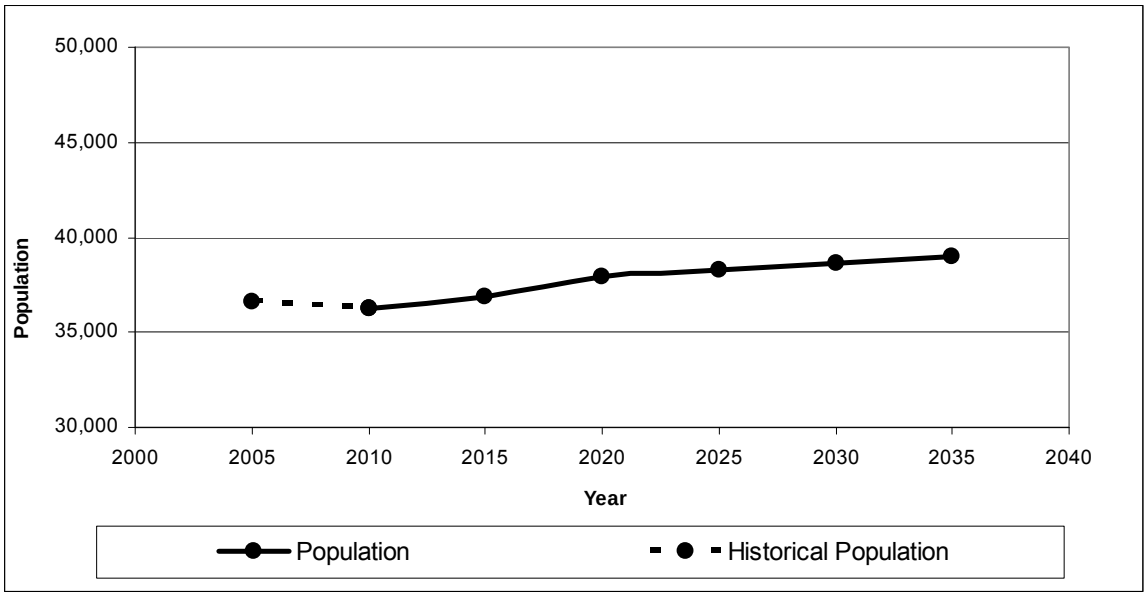

Figure 2-3: Historical and Projected Population within the Fair Oaks Water District Service Area

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2.4 Climate

The climate characteristics of the District include cool and humid winters and summers that are typically hot and dry. The Western Regional Climate Center (WRCC) maintains historic climate data for selected cities throughout the West. The Folsom Dam climate station is located approximately 10 miles from the District and is selected to provide a representative climate data for the District service area. Data obtained from the WRCC web site (www.wrcc.dri.edu) for the Folsom Dam station was utilized for this climate data analysis. Table 2-3 presents the monthly average climate summary for the period of 1971 to 2000 (approximately 30 years).

In the winter, the lowest average monthly temperature is approximately 38 degrees Fahrenheit. The highest average monthly temperature reaches approximately 92 degrees Fahrenheit in the summer. Figure 2-4 presents the monthly average precipitation based on 30-year historical data. The rainy season is typically from November to March. Monthly precipitation during the winter months ranges from 3 to 4 inches. Low humidity occurs in the summer months from May to October. The moderately hot and dry weather during the summer months typically results in moderately high water demand.

The California Irrigation Management Information System (CIMIS) web site tracks and maintains records of evapotranspiration (ETo) for select cities. ETo statistics used for this system come from the Fair Oaks station. ETo is a standard measurement of environmental parameters that affect the water use of plants. ETo is given in inches per day, month, or year and is an estimate of the evapotranspiration from a large field of well-watered, cool-season grass that is four- to seven-inches tall. The monthly average ETo is presented in inches in Table 2-3. As the table indicates, a greater quantity of water is evaporated during June, July and August in correlation to high temperatures and low humidity, which may result in high water demand.

Table 2-3: Monthly Average Climate Data Summary

Month	Standard Monthly Average ETo[3] (inches)	Average Total Rainfall (inches)[2]	Average Temperature (degrees Fahrenheit) Max Min[2]	
January	1.0	4.06	54.0	38.4
February	1.6	4.23	60.3	42.0
March	3.4	4.02	64.5	44.7
April	4.3	1.76	71.1	47.2
May	6.5	0.57	80.2	51.5
June	7.5	0.30	88.1	56.6
July	8.0	0.15	94.0	60.3
August	7.1	0.16	92.8	59.7
September	5.2	0.54	87.6	57.5

Table 2-3: Monthly Average Climate Data Summary				
Month	**Standard Monthly Average ETo[3] (inches)**	**Average Total Rainfall (inches)[2]**	**Average Temperature (degrees Fahrenheit) Max Min[2]**	
October	3.4	1.39	78.2	53.1
November	1.6	3.45	61.5	43.4
December	1.0	3.42	54.6	38.7

Notes:
1. This table is based on the DWR Guidebook Table 3.
2. Data presented are from the Folsom Dam climate station.
3. Evapotranspiration (ETo) from http://www.cimis.water.ca.gov/cimis/welcom.jsp.

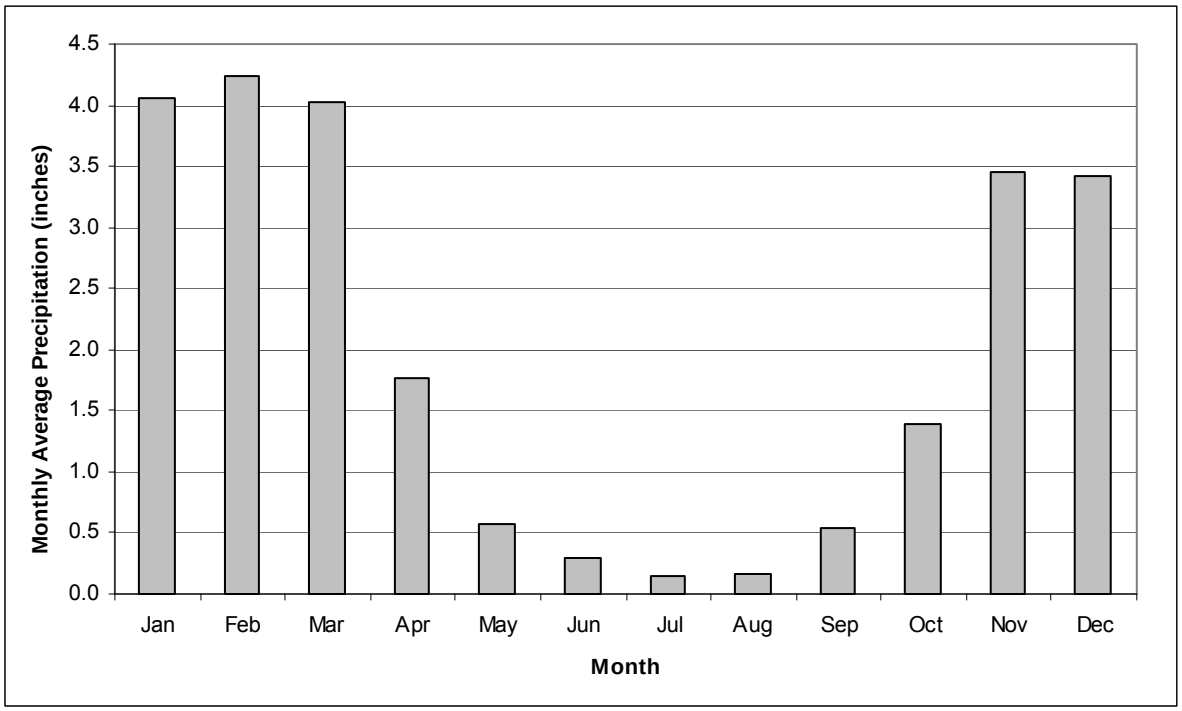

Figure 2-4: Monthly Average Precipitation at Folsom Dam Station based on 30 Years of Historical Data

Chapter 3: Water Use

Section 10631 (e) of the Act requires that an evaluation of water use be performed for the District. The Act states the following:

> *Section 10631.*
>
> *(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*
> *(I) Agricultural.*
>
> *(2) The water-use projections shall be in the same five-year increments described in subdivision (a).*

In addition, Section 10631 (k) directs urban water suppliers to provide existing and projected water-use information to wholesale agencies from which water deliveries are obtained. The Act states the following:

> *Section 10631.*
>
> *(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).*

In conjunction with projecting total water demand, each urban water retail supplier must develop urban water use targets and an interim urban water use target in accordance with Senate Bill SBX7-7. SBX7-7 amends the Act requiring statewide water savings of 20 percent by the year 2020. The bill sets specific methods for calculating both the baseline water usage and water use targets in gallons per capita day (gpcd).

Section 10608.20(e) states the following:

> *Section 10608.20.*
>
> *(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.*

This chapter presents an analysis of water use data with the resulting projections for future water needs and water use targets in accordance with SBX7-7 for the District.

3.1 Historical Water Use

Historical water use data from 2005 to 2010 were analyzed in order to provide an overview of historical water use trends. The historical water use data is based on the District's Public Water System Statistics reports submitted to Department of Water Resources (DWR). In order to better understand actual water use patterns, the District has just completed an aggressive meter retrofit program. From 2005 to 2010, the District has completed approximately 1,000 meter retrofits on existing services per year. As of December 2010, all customer services have been metered, but not yet billed at a metered rate. As of completion of this UWMP, all customers have been metered and only 186 customers elected to be billed at a metered rate. In 2011, the District is providing metered rate information with the ratepayer's billing to prepare them for the District wide metered billing rate starting 1 January 2012. Metered data will be a helpful tool to provide for the analysis of historical water use in future UWMP updates.

Figure 3-1 shows the historical number of service connections including metered and unmetered and the total water use for the District from 2005 through 2010.

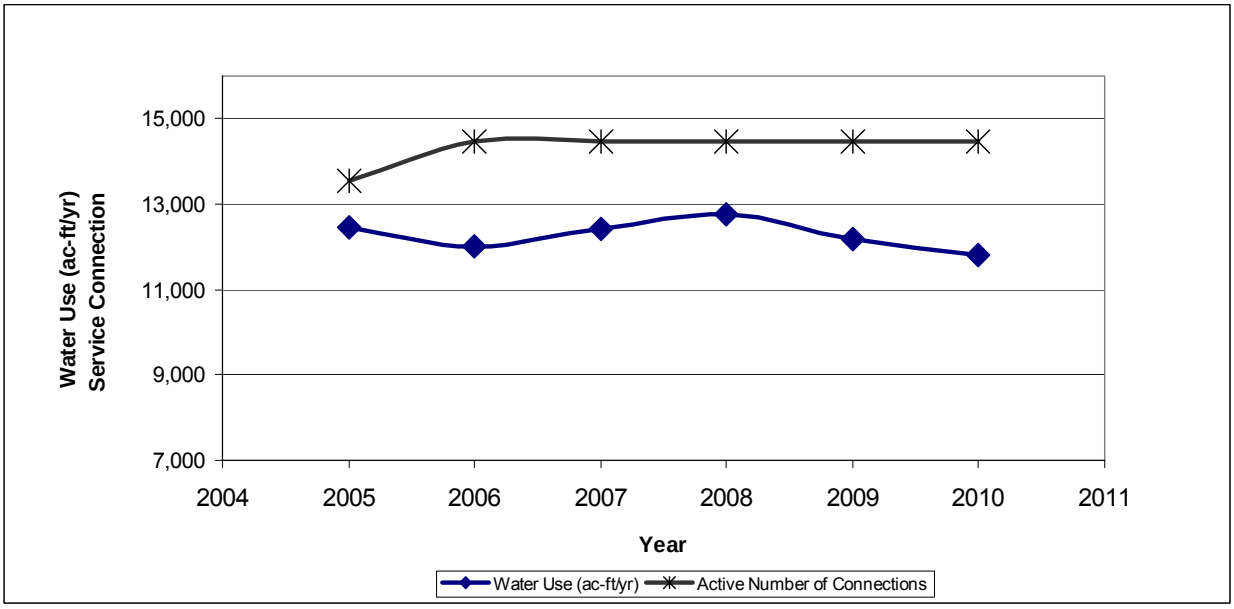

Figure 3-1: Historical Number of Service Connections and Water Use

Figure 3-1 exhibits an overall decline of 5 percent in water use from 2005 to 2010. The overall decline in water use has been widespread for surrounding water purveyors and is not isolated to the District. The recent decline in water use is not yet fully understood, but may be a result of several factors including: continued implementation of the meter retrofit program, several years of cool mild summers, a statewide drought that forced mandatory water reductions and voluntary water conservation, and an economic downturn that has caused many businesses to close and increased housing vacancies.

Table 3-1 shows the historical water use by customer type. Water use categories tracked by the District are single family, multi-family, commercial/institutional, and landscape irrigation. As the meter retrofit program is just recently complete, the unmetered category is assumed to comprise of residential service connections. Unaccounted for water losses are estimated at 10 percent of total District water use.

Table 3-1: Historical Water Use (ac-ft/yr) by Customer Type

Year	Single-Family	Multi-Family	Commercial/ Institutional	Landscape Irrigation	Unmetered	Unaccounted Water Loss	Total
2005	0	980	1,415	190	8,737	1,132	12,454
2006	141	561	923	141	9,164	1,093	12,024
2007	158	566	875	159	9,544	1,130	12,432
2008	81	553	1,322	172	9,470	1,160	12,759
2009	88	514	1,060	166	9,245	1,107	12,181
2010	98	520	1,050	382	8,677	1,073	11,800

3.2 Water Use Targets

This section includes documentation of the water use targets commensurate with enactment of SBX7-7. The 2010 UWMP update is the first in which such targets have been required to be documented. The projected water use for each urban water supplier is required to be reduced by a total of up to 20 percent by the year 2020 from a calculated baseline gpcd as required by SBX7-7. The steps described throughout this section follow the guideline methodologies developed by DWR over the past year, as documented in Section D of the *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (DWR Guidebook) issued March 2011. The three overall steps to determine the 2020 water use target are as follows:

- Step 1 – Calculate the baseline per capita water use, using the required methodologies.
- Step 2 – Calculate the per capita reduction using at least one of the four methodologies (including the minimum reduction target – which is a provision included to ensure all agencies achieve a minimum level of water savings).

- Step 3 – Select the target reduction methodology and set interim (2015) and compliance (2020) water use targets. The chosen methodology is the responsibility of the water supplier and may be changed in 2015.

The Act now stipulates that the state shall review the progress made towards reaching the statewide water savings targets as reported in the 2015 UWMP updates. Currently, no single urban water supplier is required to conserve more than 20 percent; however, there are provisions in the law that could require additional conservation after 2015 if it is found that the program is not on track to reach 20 percent statewide water savings by 2020.

3.2.1 Baseline Per Capita Water Use

The first step in the process of determining the water use target is calculation of the baseline per capita water use (baseline gpcd). In order to calculate the baseline gpcd, service area population within the District service area was estimated and compared to actual water use records. The following three baseline gpcd calculations identified in SBX7-7 were evaluated:

- Baseline Method 1 – Average water use over a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010.

- Baseline Method 2 – For retailers with at least 10 percent of 2008 demand served by recycled water (either retail-or wholesale-provided), this calculation may be extended to include an additional 5 years ending no earlier than December 31, 2004 and no later than December 31, 2010.

- Baseline Method 3 – Estimate of average gross water use reported in gpcd and calculated over a continuous 5-year period ending no earlier than December 31, 2007 and no later than December 31, 2010.

The Baseline Methods 1 and 3 were evaluated using water supply data for the years ending December 31, 2001 through December 31, 2010. The base water use was calculated for each year commencing with 2001. The District does not currently receive any recycled water; therefore Baseline Method 2 is not applicable.

Table 3-2 presents the base period ranges, total water deliveries and the volume of recycled water delivered in 2008; in order to determine the number of years that can be included in the base period range. The District does not have any recycled water supply, therefore these values are set at zero. Also shown are the actual start and end years for the selected base period range.

Table 3-2: Base Period Ranges			
Base	**Parameter**	**Value**	**Units**
10-year base period	2008 total water deliveries	12,759	Ac-ft
	2008 total volume of delivered recycled water	0	Ac-ft
	2008 recycled water as a percent of total deliveries	0	Percent
	Number of years in base period	10	Years
	Year beginning base period range	2001	
	Year ending base period range	2010	
5-year base period	Number of years in base period	5	Years
	Year beginning base period range	2003	
	Year ending base period range	2007	

Note:
Table format based on DWR Guidebook Table 13.

The average annual daily per capita water use in gpcd from 2000 through 2010 is provided in Table 3-3. The gallons per capita day calculation includes potable water entering the distribution system.

Table 3-3: 2000-2010 Average Annual Daily Use			
Calendar Year	**Estimated System Population**	**Gallons/day**	**Annual Daily per Capita Water Use, gpcd**
2000	36,951[(2)]	12,833,789	347
2001	36,879	13,522,190	367
2002	36,806	12,557,451	341
2003	36,734	11,224,267	306
2004	36,661	12,633,972	345
2005	36,589	11,117,225	304
2006	36,516	10,733,265	294
2007	36,444	11,097,390	305
2008	36,371	11,389,288	313
2009	36,299	10,873,666	300
2010	36,226[(2)]	10,533,643	291

Notes:
1. Table format based on DWR Guidebook Tables 14 and 15.
2. Population for year 2000 and 2010 are based on 2000 and 2010 Census data.

The 10-year averages available for the District to select are presented in Table 3-4; and the 5-year averages are shown in Table 3-5. The 2000-2009 10-year and 2004-2008 5-year average base daily usages of 322 and 312 gpcd respectively were selected.

Table 3-4: 10-Year Average Base Daily Per Capita Water Use (Method 1)

10-Year Period	Average Base Daily per Capita Water Use (gpcd)
2000-2009	322
2001-2010	316

Table 3-5: 5-Year Average Base Daily Per Capita Water Use

5-Year Period	Average Base Daily per Capita Water Use (gpcd)
2003-2007	311
2004-2008	312
2005-2009	303
2006-2010	300

3.2.2 Urban Water Use Target Calculation

Retail suppliers must identify their demand reduction targets by utilizing one of four compliance methods identified in SBX7-7. The four compliance methods are as follows:

- Compliance Method 1 – 80 percent of baseline gpcd water use.
- Compliance Method 2 – The sum of the following performance standards: indoor residential use (provisional standard set at 55 gpcd); plus landscape use, including dedicated and residential meters or connections equivalent to the State Model Landscape Ordinance (70 percent of reference evapotranspiration (ETo); plus 10 percent reduction in baseline commercial, industrial institutional (CII) water use by 2020.
- Compliance Method 3 – 95 percent of the applicable state hydrologic region target as identified in the 2020 Conservation Plan (DWR, 2010).
- Compliance Method 4 – A provisional method identified and developed by DWR through a public process released 16 February 2011, which aims to achieve a cumulative statewide 20 percent reduction. The method assumes water savings will be obtained through metering of unmetered water connections and achieving water conservation measures in three water use categories: (1) indoor residential, (2) landscape, water loss and other unaccounted for water and (3) CII.

The District elected to evaluate Methods 1 and 3 for selecting urban water use targets for the 2010 plan. The following provides an explanation of the target calculations; a summary of the interim and compliance water use targets is provided in the following section.

Compliance Method 1 Calculation Summary

The Method 1 2020 water use target was calculated by multiplying the base daily gpcd by 80 percent. A 20 percent reduction in baseline water use would require a reduction of 64 gpcd by 2020 as shown in Table 3-6. The 2015 interim target would be 290 gpcd with a 2020 water use target of 258 gpcd.

Table 3-6: 2020 Water Use Target Method 1 Calculation Summary

Description	Baseline	2015 Interim Target	2020 Compliance Target
Per Capita Water Use (gpcd)	322	290	258
Percent Reduction (%)	--	10%	20%

Compliance Method 3 Calculation Summary

Method 3 2020 water use target was calculated by multiplying the respective hydrologic region target by 95 percent. The District is located in the Sacramento River Region (Region 5), which has a hydrologic region target of 176 gpcd and a baseline water use of 253 gpcd. 95 percent of the Region 5 hydrologic region target results in a 2020 water use target of 167 gpcd. Table 3-7 presents the results of the Method 3 calculation:

Table 3-7: 2020 Water Use Target Method 3 Calculation Summary

Description	Baseline	2015 Interim Target	2020 Compliance Target
Per Capita Water Use (gpcd)	322	245	167
Percent Reduction (%)	--	24%	48%

Minimum Compliance Reduction Target

Systems with a baseline per capita water use of greater than 100 gpcd must calculate a minimum water use reduction, in which the 2020 water use target cannot exceed. The minimum water use reduction compliance target is 95 percent of the 5-year rolling average base daily per capita water use (ending no earlier than December 31, 2007, and no later than December 31, 2010). Table 3-8 presents the minimum water use reduction results:

Table 3-8: Minimum 2020 Reduction

Description	5-Yr Average	2015 Interim Target	2020 Compliance Target
Minimum allowable 2020 Target (gpcd)	312	304	296

3.2.3 Interim and Compliance Water Use Targets

The interim and compliance water use targets are provided in Table 3-9 per Section 10608.20(e) of the Act. Since both the Method 1 and 3 compliance targets are less than the minimum reduction; compliance Method 1 was selected by the District. As a result, the 2020 SBX7-7 compliance target for the District is 258 gpcd and the 2015 interim water use target is 290 gpcd. The implementation plan for achieving these targets is described in Section 4.8, Recycled Water and Chapter 7, Demand Management Measures.

Table 3-9: SBX7-7 Water Use Reduction Targets (gpcd)

Baseline	2015 Interim Target	2020 Compliance Target
322	290	258

3.3 Projected Water Use

Growth projections for the number of service connections and volume of future water use were calculated for the year 2015 through 2035, in 5-year increments. Future water demands were estimated using a population-based approach.

The population-based water use projections are based on SACOG projected population and housing growth rates. SACOG household projections were used to determine the growth in single-family and multi-family service connections and water use for the years 2015, 2020, 2025, 2030, and 2035. For example, the ratio between the household projections for the year 2015 and the year 2010 was multiplied by the number of service connections in 2010 to obtain a projection of the number of connections in the year 2015. Similarly, employment growth projections were used to determine the growth for commercial/institutional and landscape service connections.

Figure 3-2 shows the historical and projected number of service connections for the District from 2005 through 2035. Figure 3-3 shows the historical and projected water use for the District System from 2005 through 2035. As the District wide commodity rate billing begins in 2012, it is assumed that the District will see an approximate 15% water savings from its residential water use. This estimate is comparable with CUWCC literature which assumes a maximum of 20 percent savings is realized from meter retrofits (CUWCC, 2010).

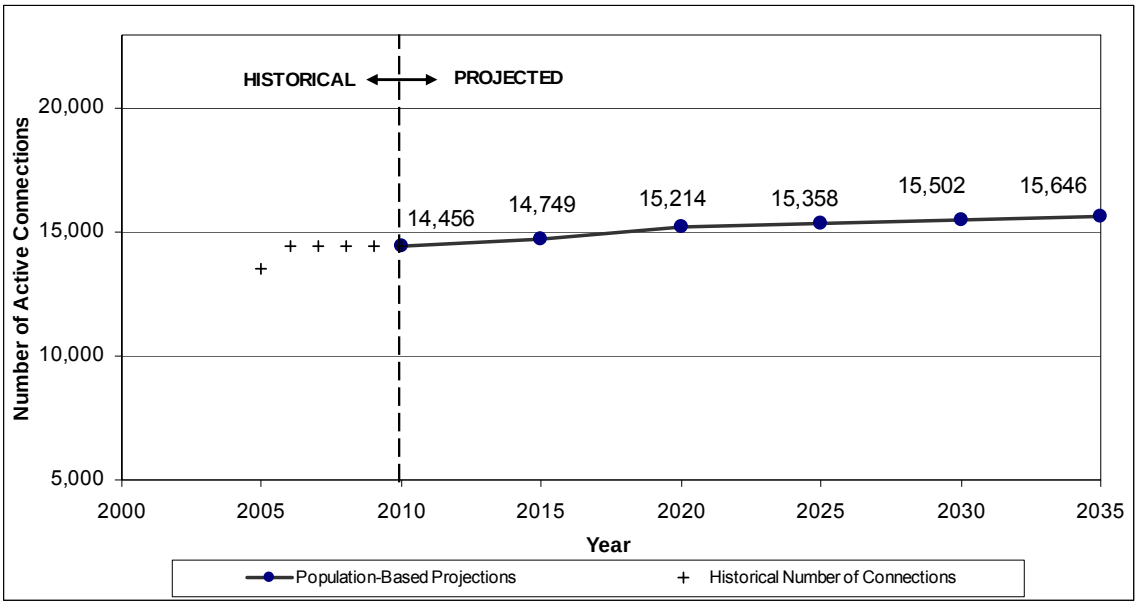

Figure 3-2: Historical and Projected Number of Service Connections

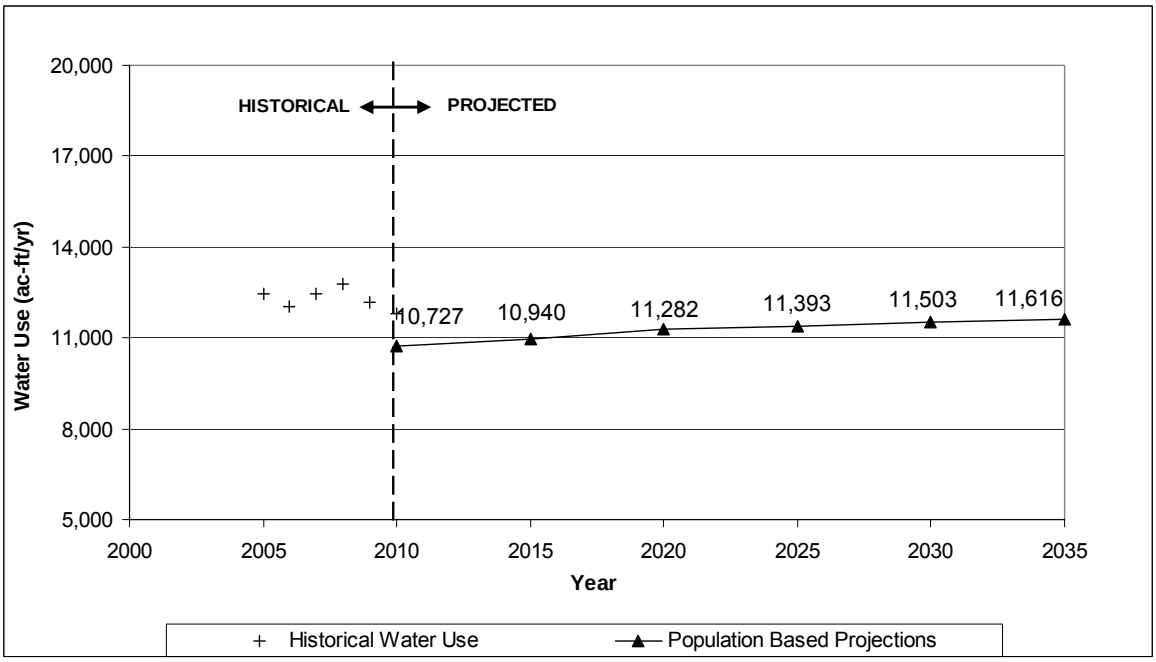

Figure 3-3: Historical Water Use and Future Water Use Projections

Figure 3-4 shows the population based water use projections by customer type. The population-based projections of the number of service connections and the resulting water use are provided in Table 3-10. The District will commence volumetric billing in 2012 for the currently unmetered service connections. Based on the District's service connection data reported in 2010, 93% of all service connections in the District's service area are unmetered, with unmetered single family residential accounts making up 90% of all total service connections. About 1% of the District's single family residential customers have voluntarily enrolled in

volumetric billing since 2008. Due to the short period of recorded water use data over a very small number of accounts compared to the District's total single family residential accounts, it is not possible to obtain a representative metered water use factor to apply to future water use projections. The District water use (not including unaccounted-for water) is projected through 2035 as shown in Figure 3-4. The District will have a better understanding of metered single family residential water use over the next several years. At such time, an updated water use projections will be provided.

Table 3-10: Projections of the Number of Service Connections and Water Use

Year	Projection Type	Account Category					Unaccounted for Water Use	Total
		Single Family	Commercial/ Institutional	Landscape Irrigation	Multifamily	Unmetered		
2005[2]	*No. of Accounts*	0	563	67	247	12,683	-	13,560
	Water Use (ac-ft)	0	1,415	190	980	8,737	1,132	12,454
2010[2]	*No. of Accounts*	186	451	112	195	13,512	-	14,456
	Water Use (ac-ft)	98	1,050	382	520	8,677	1,073	11,800
2015	*No. of Accounts*	13,978	458	114	199	0	-	14,749
	Water Use (ac-ft)	7,627	1,065	388	532	0	961	10,573
2020	*No. of Accounts*	14,418	472	118	206	0	-	15,214
	Water Use (ac-ft)	7,867	1,097	400	548	0	991	10,903
2025	*No. of Accounts*	14,553	478	119	208	0	-	15,358
	Water Use (ac-ft)	7,940	1,112	405	553	0	1,001	11,011
2030	*No. of Accounts*	14,687	484	121	210	0	-	15,502
	Water Use (ac-ft)	8,014	1,126	410	558	0	1,011	11,118
2035	*No. of Accounts*	14,822	491	122	211	0	-	15,646
	Water Use (ac-ft)	8,087	1,141	416	564	0	1,021	11,229

Notes:
1. This table is based on the DWR Guidebook Tables 3 through 7.
2. Based on calendar year.

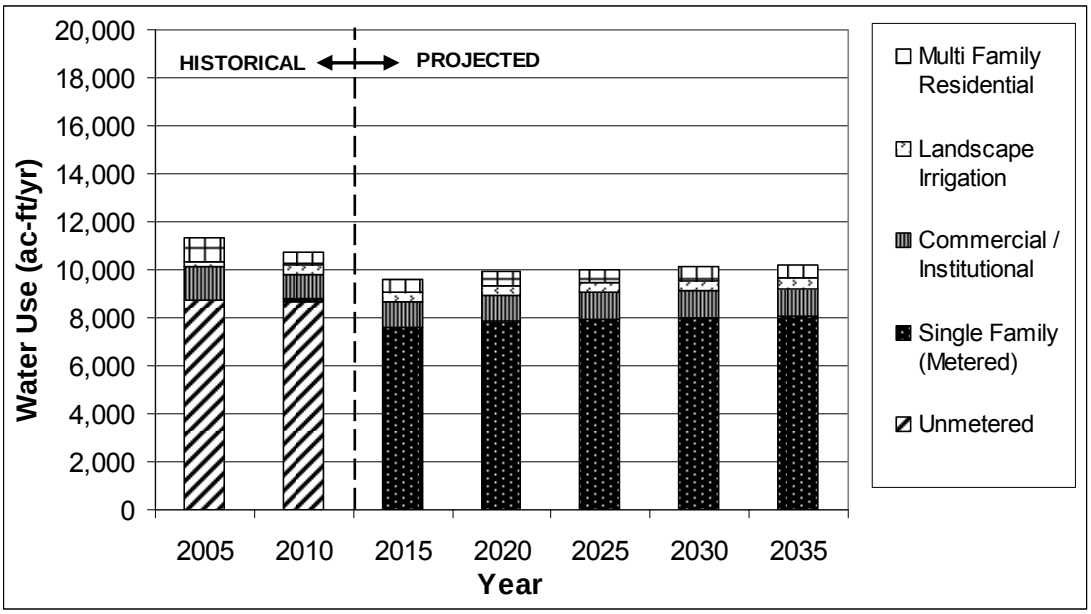

Figure 3-4: Projected Water Use by Customer Type

3.4 Sales to Other Agencies

The District does not sell water to other agencies; therefore, Table 3-11 has been intentionally left blank.

Table 3-11: Sales to Other Agencies in ac-ft/yr

Water Distributed	2005	2010	2015	2020	2025	2030	2035
None	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
1. This table is based on the DWR Guidebook Table 9.
2. Based on calendar year.

3.5 Other Water Uses and System Losses

In order to estimate total water demand, other water uses, as well as any water lost during conveyance, must be added to the customer demand. California regulation requires water suppliers to quantify any additional water uses not included as a part of water use by customer type. There are no other water uses in addition to those already reported by the District.

System losses must be incorporated when projecting total water demand. System losses(also known as non-revenue water) are defined as the difference between annual production and supply, and annual sales. Included are system losses due to leaks, inaccurate meters, and other water used in operations such as system flushing and filter backwashing. The District will begin residential meter readings in 2012. As the District's water demand is mostly unmetered residential accounts, the actual amount of system losses are not quantifiable; therefore, it is assumed that system losses comprises 10 percent of the total production. Table 3-12 provides a summary of current and projected system losses in the District.

Table 3-12: Additional Water Uses and Losses in ac-ft/yr							
Water-Use Type	**2005[2]**	**2010[2]**	**2015**	**2020**	**2025**	**2030**	**2035**
Other Water Uses	N/A	N/A	N/A	N/A	N/A	N/A	N/A
System Losses[3]	1,132	1,073	961	991	1,001	1,011	1,021
Total	1,132	1,073	961	991	1,001	1,011	1,021

Notes:
1. This table is based on the DWR Guidebook Table 10.
2. Based on calendar year.
3. Includes system losses due to leaks and metering devices inaccuracies, as well as water used in operations.

3.6 Total Water Demand

As described above, other water uses, as well as any water lost during conveyance, must be added to the customer demand in order to project total water demand for the District. Although there is no other water uses contributing to the total water demand in the District, system losses must be incorporated into the total water demand. Table 3-13 summarizes the projections of service connections, water sales, system losses, and total water demand through the year 2035.

The projected water sales and systems losses were added to estimate the total baseline water demand shown in Table 3-13.

Table 3-13: Projected Total Water Demand in ac-ft/yr			
Year	**Projected Water Sales**	**Unaccounted for System Losses**	**Total Water Demand**
2005[2]	11,322	1,132	12,454
2010[2]	10,727	1,073	11,800
2015	9,612	961	10,573
2020	9,912	991	10,903
2025	10,010	1,001	11,011
2030	10,108	1,011	11,118
2035	10,208	1,021	11,229

Notes:
1. This table is based on the DWR Guidebook Table 11.
2. Actual data, based on calendar year.

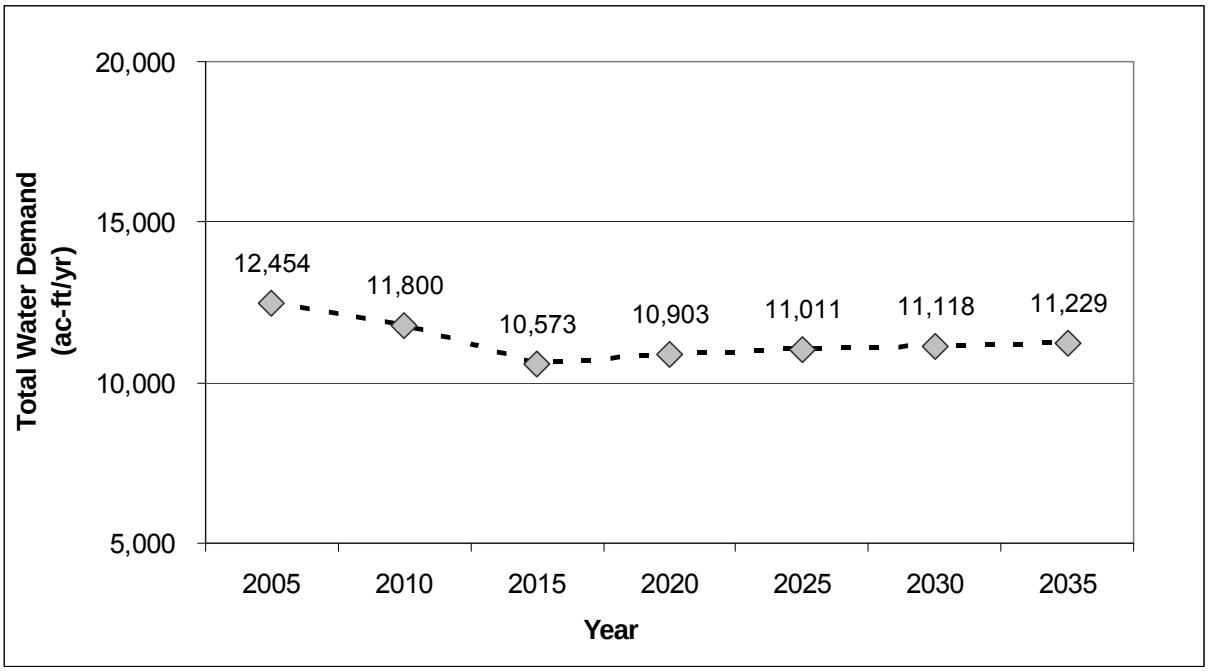

Figure 3-5: Total Water Demand

3.7 Data Provided to Wholesale Agency

The District provided the following projected surface water demand data in August 2011 to SJWD, the District's wholesale water supplier, as summarized in Table 3-14. As required per Section 10631(k) the supporting documentation providing the water use projections to the wholesale agency is included in Appendix H. The projections included in this table are only the projected surface water demand and does not include projected groundwater pumping by the District as described in Chapter 4.

Table 3-14: Summary of District Water Use Data Provided to SJWD in ac-ft/yr

Wholesaler	Contracted Volume	2010[2]	2015	2020	2025	2030	2035
SJWD	Varies	10,606	9,424	9,718	9,814	9,910	10,008

Notes:
1. This table is based on the DWR Guidebook Table 12.
2. Based on calendar year.

3.8 Disadvantaged Community Water Use Projections

Section 10631.1 (a). Include projected water use for single family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

Senate Bill 1087 requires that the water use projections of an UWMP include the projected water use for future single-family and multi-family lower income residential housing as identified in the housing element of any city and/or county in the service area of the supplier.

Housing elements rely on the Regional Housing Needs Allocation (RHNA) generated by the State Department of Housing and Community Development (HCD) to allocate the regional need for housing to the regional Council of Governments (COG) (or a HCD for cities and counties not covered by a COG) for incorporation into housing element updates. Before the housing element is due, the HCD determines the total regional housing need for the next planning period for each region in the state and allocates that need. The COGs then allocate to each local jurisdiction its "fair share" of the RHNA, broken down by income categories; very low, low, moderate, and above moderate, over the housing element's planning period.

Sacramento County last updated its housing element in 2006. A lower income house is defined as 80 percent of median income, adjusted for family size. The County's housing element identifies the target number of low income households in the County from 2006 to 2013 as 15.1 percent and very low income households as 22 percent. Since it is unknown what percentage of the low income households are within the District's service area, it is not possible to project water use for lower income households separately from overall residential demand. However, to remain consistent with the intent of the SB-1087 legislation and to comply with the UWMP Act, an effort has been made to identify those water use projections for future single and multi-family households based on the aggregate percentage of both the low income and very low income categories. 37 percent was used to estimate the lower income demand projections as shown in Table 3-15 below.

Table 3-15: Lower Income Demand Projections in ac-ft/yr

	2015	2020	2025	2030	2035
Single-Family Residences	17	106	134	161	188
Multi-Family Residences	4	11	13	15	16
Total	21	117	146	176	204

Note:
This table is based on the DWR Guidebook Table 8.

The District will not deny or condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households unless one of the following occurs:

- The District specifically finds that it does not have sufficient water supply.
- The District is subject to a compliance order issued by the State Department of Public Health that prohibits new water connections.
- The applicant has failed to agree to reasonable terms and conditions relating to the provision of services.

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Chapter 4: Water Supply

A detailed evaluation of water supply is required by the Act. Sections 10631 (b) through (d) and (h) of the Act state the following:

Section 10631.

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

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. 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.

(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.

(c) (1) 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:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) 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.

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

(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.

This chapter addresses the water supply sources of the District. The following chapter provides details in response to those requirements of this portion of the Act.

4.1 Water Sources

The District currently receives approximately 90 percent of its water supply from treated surface water though its wholesale supplier, San Juan Water District (SJWD) supplied from the American River. In addition, six (6) groundwater wells supplement the surface water supply to meet conjunctive use objectives, peak demands and for emergency supply. Currently, groundwater meets the remaining ten (10) percent of the District's water demands. The percentages of surface water and groundwater used by the District may change contingent on the development of regional conjunctive use efforts, local groundwater quality, and changing water quality regulations. The District will determine the appropriate mix of surface water and groundwater to meet the needs of its customers.

The District also has five (5) inter-ties with neighboring agencies for emergency purposes; however, the use of these inter-ties is limited due to their size and the availability of water. For example, two neighboring districts with inter-ties, Orange Vale Water Company and Citrus Heights Water District, also receive water from SJWD and if surface water is interrupted, these districts may have trouble supplying water to the District in an emergency situation.

Table 4-1 summarizes the current and planned water supplies available to the District that will meet the projected water demands under normal water years. This water supply summary is based on analysis of supplies from surface water and groundwater. The available groundwater supply shown in Table 4-1 is the current firm normal year capacity assuming the largest production well is offline. There is currently no projected recycled water supply for use within the District (see Chapter 4.8).

Table 4-1: Current and Planned Water Supplies in ac-ft/yr

Source	2010[2]	2015	2020	2025	2030	2035
Groundwater	1,194	8,388	8,388	8,388	8,388	8,388
Purchased water from SJWD [3]	10,606	12,853	13,509	14,184	14,894	Not Provided
Recycled water	0	0	0	0	0	0
Total	11,800	21,241	21,897	22,572	23,282	--

Notes:
1. Table format based on DWR Guidebook Table 16.
2. Years are reported in calendar years.
3. Based on SJWD 2010 UWMP

The District works together with two primary agencies to ensure a safe and high-quality water supply, which will continue to serve the community in periods of drought and shortage:

- San Juan Water District (SJWD): the District's wholesaler agency providing surface water
- Sacramento Groundwater Authority (SGA); a joint powers authority created to collectively manage the Sacramento region's north area groundwater basin.

4.2 San Juan Water District

SJWD was formed in 1954 and is a wholesaler and retailer of potable water. The wholesale area includes the service areas of the Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company, and a portion of the City of Folsom and Sacramento Suburban Water District.

Before SJWD was formed, water was supplied to the area by the North Fork Ditch Company (Company). The Company provided water for dredge mining along the American River and also sold water to Citrus Heights Irrigation District, Fair Oaks Irrigation District, and Orange Vale Water Company. Because many of the Company's facilities would be impacted with the construction of Folsom Dam, a committee was formed by residents of Citrus Heights Irrigation District, Fair Oaks Irrigation District, and Orange Vale Water Company to study the development of a publicly owned water supply system to continue supplying the area with wholesale water. The San Juan Suburban Water District (now SJWD) was formed by the acquisition of the Company including its pre-1914 water rights of 33,000 acre-feet (ac-ft) from the American River.

The Citrus Heights Water District, Fair Oaks Water District, Orange Vale Water Company and San Juan Water District are all considered to be members of the San Juan family of water agencies (San Juan Family).

SJWD diverts surface water from Folsom Reservoir. SJWD's surface water supply consists of the following:

1. Pre-1914 Water Rights: SJWD has two pre-1914 water rights with a combined maximum diversion rate of 75 cubic feet per second (cfs) up to a total of 33,000 ac-ft/yr. The water rights are designated by the State Water Resources Control Board (SWRCB) as A005830 and S000656.

2. Placer County Water Agency Contract: SJWD's contract provides 25,000 ac-ft/yr from Placer County Water Agency. This contract extends through 2021 and places a first priority on use in Placer County, but allows any excess water to be used in Sacramento County.

3. Central Valley Project (CVP) Water: SJWD has two contracts with the United States Bureau of Reclamation (USBR) for the diversion of 24,200 ac-ft of CVP water. The contracts include No. 14-06-200-152A-IR7 and No. 6-07-20-W1373.

Surface water is treated at the Sydney N. Peterson Water Treatment Plant (WTP), which is owned and operated by SJWD. The capacity of the Peterson WTP is 120 million gallons per day (mgd). After being treated at the WTP, water is conveyed to the Hinkle Reservoir. The Hinkle Reservoir has a capacity of 62 million gallons (MG) or 190 ac-ft and provides water storage to meet fluctuations in demand and to provide emergency supply if the WTP is out of service. From the Hinkle Reservoir, water is distributed via pipelines to customers of SJWD. Two transmission pipelines deliver treated surface water to the District.

The District and SJWD entered into a water supply contract on December 11, 1991. The 1991 Contract increased the minimum quantity of water delivered from 12,375 ac-ft to 15,000 ac-ft per annum, measured at meters operated and maintained by SJWD. On January 1, 2004 an "Interim" wholesale water supply contract was executed based on the intention that a final agreement would be developed in the near future that incorporates conjunctive use provisions.

The District currently maintains three metered connections to the SJWD's transmission main system. The characteristics of these connections are shown in Table 4-2. The 12-inch connection branches off of the 40-inch pipeline (Main Avenue Connection) to serve the eastern portion of the District.

Table 4-2: Surface Water Connections

Size	Connection	Capacity (mgd)
39-inch	Main Avenue @ Pershing Avenue	37[1]
12-inch	Main Avenue @ Twin Lakes	3.5[1]
30-inch	Filber Avenue @ Pershing Avenue	20[2]
	Total Capacity	60.5

Notes:
1. Capacity based on 10 ft/s maximum velocity.
2. Contractual capacity.

4.3 Groundwater

4.3.1 District Groundwater Production

Within the District, groundwater is produced from six operating wells that vary in design capacity from 500 gallons per minute (gpm) to 2,700 gpm. The wells are located primarily in the central portion of the District's water system and are used to meet short-term water supply or maintain the District's water system pressure.

Table 4-3 lists the existing active wells for the District. The District currently has a total firm normal year capacity of 5,200 gpm (8,388 ac-ft/yr) assuming the largest production well is offline.

Table 4-3: District Wells and Well Capacity

Well No	Well Name	Design Capacity (gpm)	Design Capacity (Acre-Ft)
6	New York	1,000	1,613
7	Casa Bella	700	1,129
8	Fair Oaks Park	500	807
9	Northridge	1,000	1,613
10	Town	2,700	4,355
11	Heather	2,000	3,226
Total Capacity		7,900	12,743
Total Firm Capacity[1]		5,200	8,388

Note:
1. Total Firm Capacity assumes the District's largest production well is offline.

The current and historical groundwater pumping amounts for the District is shown in Table 4-4 for calendar years (January 1 – December 31) 2006 to 2010.

Table 4-4: Historical and Current Groundwater Pumping Amounts in ac-ft						
Basin Name	**Metered or Unmetered**	**2006**	**2007**	**2008**	**2009**	**2010**
Sacramento North Area Groundwater Basin	Metered	845	899	2,225	1,109	1,194
Percent of Total Water Supply		7.0%	7.2%	17.4%	9.1%	10.1%

Notes:
1. Table format based on DWR Guidebook Table 18.
2. Years are reported in calendar years.

Table 4-5 shows the projected groundwater pumping amounts by the District.

Table 4-5: Current and Projected Groundwater Pumping Amounts in ac-ft							
Basin Name	**Metered or Unmetered**	**2010(1)**	**2015**	**2020**	**2025**	**2030**	**2035**
Sacramento North Area Groundwater Basin	Metered	1,194	1,057	1,090	1,101	1,112	1,123
Percent of Total Water Demand		10.1%	10%	10%	10%	10%	10%

Notes:
1. Table format based on DWR Guidebook Table 19.
2. Years are reported in calendar years.

4.3.2 Sacramento Region's North Area Groundwater Basin (Basin) Description

California has ten hydrologic regions as defined by DWR. The Sacramento River Hydraulic Region covers 27,200 square miles and stretches from the Sacramento-San Joaquin Delta to the Oregon border. The Sacramento River Hydraulic Region consists of 93 basins and sub basins. Within the Sacramento Valley, the North American Subbasin covers a total area of approximately 548 square miles and is bordered by the Feather and Sacramento Rivers to the west, Bear River to the north, American River on the south, and on the east by the Sierra Nevada mountains.

SGA manages the southern area of the North American Subbasin. The southern area has been designated by the Water Forum as the North Area Groundwater Basin (Basin). The Basin is bounded by the Sacramento River on the west, the American River on the south, Folsom Reservoir on the east and the northern Sacramento County line on the north. The groundwater resources of Sacramento County have been extensively studied and reported by DWR and others.

Water bearing formations beneath the District occur in two major strata. The upper water-bearing units include the geologic formations of the Victor, Fair Oaks, and Laguna Formations and are typically unconfined. The lower water-bearing unit consists

primarily of the Mehrten Formation, which exhibits confined conditions. The Mehrten Formation is the most productive fresh water-bearing unit in the eastern Sacramento Valley, though some of the permeable layers of the Fair Oaks Formation produce moderate amounts of water. Much of the recharge of these aquifer systems comes from the Sacramento and American Rivers and their tributaries where gravel deposits exist. To a lesser extent, aquifer recharge also occurs where the Mehrten Formation reaches the surface in the foothills in eastern Sacramento and western El Dorado County. Supply wells in the Sacramento Region draw water primarily form the Mehrten and Fair Oaks formations and typically produce 500-1,500 gpm of good to excellent quality water.

The North American Subbasin is not adjudicated and based on the DWR' official departmental bulletins, California's Groundwater Bulletin 118 Update 2003 and Bulletin 160, The California Water Plan Update 2005, the North American Subbasin is not specifically identified as a basin in a critically overdraft condition. The Bulletin 118, February 2004 individual basin description for the North American Subbasin, suggests that annual pumping exceeds the amount of water annually recharged, however, a detailed groundwater budget is not provided. SGA does not classify the Basin as overdrafted; however, it recognizes that groundwater levels fluctuate over time and that historic groundwater extractions have resulted in a net depletion of groundwater stored in the Basin.

In an effort to protect the groundwater resources of the Basin, the estimated average annual sustainable yield recommendation for the Basin is 131,000 acre-feet as established by the Water Forum. Although there are areas within the Basin that are experiencing decreased groundwater levels, the pumping extractions have not exceeded the safe yield. The Basin is not in an overdraft condition; however, SGA is implementing programs to sustain the viability of groundwater resources.

The Groundwater Management Plan discusses groundwater level trends based on long-term monitoring wells in the basin. The Basin is broken down into four specific areas and the groundwater levels are summarized below:

- Western Area – Groundwater levels vary between 5 feet below MSL and 20 feet above MSL. Groundwater elevations have been fairly stable over the period of record, with very modest increases in 2003 and 2004. Wells in the area typically experience only seasonal fluctuations. Long-term trends of increased or decreased levels are not evident in this area.

- Central Area – Groundwater levels range from 10 feet above MSL to 40 feet below MSL. Groundwater elevations in this area has declined every year until around the mid-1990s. Groundwater elevations stabilized due, at least in part, to expanded conjunctive use operations. Groundwater elevations have increased slightly over previous years despite the increase in groundwater extraction in the basin in 2007. Groundwater extraction for public water supply has been reduced in the immediate vicinity of McClellan Air Force base to help contain the movement of contamination plume.

- North-Central Area – Groundwater levels steeply declined from the 1950's to 1990. After 1990, groundwater levels stabilized. The stabilized level is approximately 40 feet below mean sea level. Groundwater elevations have increased slightly over previous years despite the increase in groundwater extraction in the basin in 2007. Groundwater extraction for public water supply has been reduced in the immediate vicinity of McClellan Air Force base to help contain the movement of contamination plume.

- South-Central Area – The groundwater level trend in this area is moderately declining. The groundwater levels have declined approximately 20 feet between 1968 and 2002. Within the North-Central and South-Central Area a regional cone of depression is evident. The cone of depression is a result of increased pumping within the Basin in excess of recharge capabilities.

- Eastern Area – The groundwater levels varies from one well to another and tend to mimic its rolling topography, higher near the American River and foothills, but declining away from the river and foothills. There were no notable changes in the recent groundwater elevations. The District is located within the Eastern Area.

SGA maintains a centralized database for the member agencies' groundwater facilities. SGA continually monitors groundwater level trends and has compiled groundwater-related data from water purveyors and DWR for inclusion in data storage and accounting tool. SGA maintains its Integrated Groundwater and Surface Water Model (IGSM), performs comprehensive data analysis, and the Data Management System. The Data Management System is a critical tool in SGA's monitoring program. The program includes the monitoring of groundwater elevations, monitoring of groundwater quality, providing locations of known groundwater contamination sites, 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 Sacramento and American Rivers.

4.3.3 Groundwater Management

In 1998, the SGA was formed to manage the Sacramento region's North Area Groundwater Basin (Basin), which includes the District service area. SGA was established in part by the Sacramento Area Water Forum (Water Forum). The Water Forum is a diverse group of local water utilities, business and agricultural leaders, and representatives from the environmental community that reached consensus on preserving the lower American River while ensuring a reliable water supply through the year 2030 for the region. In 1999, the Water Forum members approved the Water Forum Agreement, which consists of a multitude of actions necessary to provide a regional solution to water shortages, environmental degradation along the American River, and groundwater contamination.

The SGA is a joint power authority authorized by an agreement signed by the County of Sacramento and the Cities of Citrus Heights, Folsom, and Sacramento. SGA has 16 board members, of which the District is a member. The mission of SGA is to manage, protect and sustain the groundwater resources of the Basin consistent with the Water Forum Agreement for the benefit of the water users within the Basin and to coordinate with other water management entities and activities throughout the region. In an effort to sustain the groundwater resources and coordinate with the 14 overlying water purveyors of the Basin, SGA prepared a Groundwater Management Plan (GMP). On December 11, 2008, SGA adopted the current GMP. In addition to being a member of SGA and agreeing to the recommendations of the GMP, the District also decided to adopt this GMP for groundwater operations within their service area. The GMP is included in Appendix G.

4.3.4 Recharge Facilities

The Basin is recharged by natural sources. Natural recharge occurs when groundwater producers use surface water in-lieu of pumping groundwater. The Basin generally operates as a reservoir in which the net amount of water stored is increased in wet years allowing groundwater levels to rise. The reduction in groundwater pumping naturally recharges the

Basin. Other natural sources of recharge for the Basin consist of percolation from surface water, precipitation, and infiltration from streams. The Basin is mainly recharged by areas along the American and Sacramento Rivers where extensive sand and gravel deposits are present.

4.4 Transfers and Exchanges

At this time, the District does not anticipate participating in any transfer or exchange opportunities. However, the District continues to consider water exchange opportunities with neighboring purveyors, such as Carmichael Water District. One preliminary concept would include a new intertie and inline booster pump station that would provide a means for the two agencies to share water for emergency or other purposes. On a regional level, the RWA and SGA are exploring transfers and exchanges options that would benefit water agencies in the region, including the District. These transfer and exchange options include potential participation in the region's conjunctive use efforts such as groundwater banking and programmatic water transfers.

Table 4-6 summarizes the planned transfer and/or exchange opportunities in the District. Since the District does not foresee participation in any specific planned transfer and/or exchange opportunities at this time, Table 4-6 has been intentionally left blank.

Table 4-6: Transfer and Exchange Opportunities

Source Transfer Agency	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
None	N/A	N/A	N/A	N/A	N/A

Note:
Table format based on DWR Guidebook Table 20.

4.5 Planned Water Supply Projects and Programs

The District continually reviews practices that will provide its customers with adequate and reliable water supplies. The District's staff continues working to ensure safe water quality and the District's water supply will meet the District's customers' present and future needs in an environmentally and economically responsible manner.

The District's projected water demands are discussed in Chapter 3. The District anticipates only a slight demand increase due to the District's near build-out condition. The purpose of the planned water supply projects are primarily to maintain the District's level of service by replacement or upgrades of aging facilities, support regional conjunctive use efforts, and provide water supply to developments on an as-needed basis as opposed to support large sustained population growth.

The District identified updates to the following planned water supply projects from its 2005 UWMP:

- The District anticipated construction of a new groundwater well in 2010 for the 90-acre Gum Ranch Development. The Gum Ranch development is planned for an approximately 340 new single family dwellings. However, due to the economic downturn, the Gum Ranch Development remains unfinished and its completion is not anticipated in the next three (3) to five (5) years. The required capacity of the new well is not determined at this time.

- The District is considering a joint project with Orange Vale Water Company and Citrus Heights Water District to construct a water storage tank and booster pump station that would benefit the three districts. Further project discussion and negotiation have not progressed. The timing and design capacity is still not known at this time.

The District identifies the following possible new water supply projects:

- The District is considering a new groundwater well at the existing storage tank and booster pump station located at Skyway Drive. This project is currently in the short term planning phase, and the District anticipates drilling a pilot well to evaluate potential production yield by 2015.

Table 4-7 summarizes the planned water supply projects and programs in the District.

Table 4-7: Future Water Supply Projects in ac-ft/yr (gpm)

Project Name	Normal Year	Single Dry Year	Multiple Dry Years		
			Year 1	Year 2	Year 3
Gum Ranch Well	1,614 (1,000)	1,614 (1,000)	1,614 (1,000)	1,614 (1,000)	1,614 (1,000)
Skyway Drive Well	807 (500)	807 (500)	807 (500)	807 (500)	807 (500)

Note:
This table is based on the DWR Guidebook Table 26.

4.6 Wholesale Agency Supply Data

San Juan Water District's (SJWD) existing and planned water sources available to the District under normal years were obtained from SJWD's 2010 UWMP and are provided in Table 4-8.

Table 4-8: Existing and Planned Water Sources in ac-ft/yr

Wholesaler Sources	Contracted Volume	2010(1)	2015(3)	2020(3)	2025(3)	2030(3)	2035
SJWD	Varies	10,606	12,853	13,509	14,184	14,894	Not Provided

Notes:
1. Table format based on DWR Guidebook Table 17.
2. Based on calendar year.
3. Based on SJWD 2010 UWMP Table 3-11 Sales to Other Water Agencies

Table 4-9 demonstrates the reliability of wholesale water supply to meet annual water demand of the District. The table includes a single-dry year and multiple-dry year supplies for the year 2030 as indicated in SJWD's 2010 UWMP. Since SJWD does not provide supply availability data for the year 2035, it is assumed that the 2030 projected supply availability will continue to be available in 2035.

Table 4-9: Reliability of Wholesale Supply for Year 2030 in ac-ft/yr					
			Multiple-Dry Water Years		
Wholesaler	Average / Normal Water Year Supply	Single Dry	Year 1	Year 2	Year 3
SJWD	14,894	14,894	14,894	14,894	14,894
Percent Normal	100%	100%	100%	100%	100%

Note:
Table format based on DWR Guidebook Table 31.

Table 4-10 lists factors affecting wholesale supply for the District.

Table 4-10: Factors Affecting Wholesale Supply				
Name of Supply	Legal	Environmental	Water Quality	Climatic
SJWD	X	X	None	X
Percent of Total Water Supply	0	0	0	0

Note:
Table format based on DWR Guidebook Table 29.

4.7 Desalination

Section 10631 (i) of the Act requires an evaluation of desalination opportunities. The Act states the following:

Section 10631

(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Desalination is viewed as a way to develop a local, reliable source of water that assists agencies to reduce their demand on surface water, reduce groundwater overdraft, and in some cases make unusable groundwater available for municipal uses. At this time, there are no identified projects within the District for desalination of seawater or impaired groundwater; therefore, Table 4-11, has been intentionally left blank.

Table 4-11: Summary of Opportunities for Water Desalination				
Source of Water	Yield (ac-ft/yr)	Start Date	Type of Use	Other
None	None	N/A	N/A	N/A

4.8 Recycled Water Plan

This chapter covers Section 10633 which details the requirements of the Recycled Water Plan that are included in the Act. The Act states the following:

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:

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

(c) 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.

(d) 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.

(e) 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.

(f) 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.

4.8.1 Coordination

Table 4-12 summarizes the role of the agencies that participated in the development of recycled water plans that affect the District.

Table 4-12: Role of Participating Agencies in the Development of the Recycled Water Plan

Participating Agencies	Role in Plan Development
Water agencies	The District works closely with the Sacramento Regional County Sanitation District (SRCSD) in planning a potential recycled water distribution system and identifying potential recycled water customers. The SRCSD, acting as the recycled water wholesaler, would lead the way in implementing the recycled water plan and distribution network.
Wastewater agencies	The SRCSD provides a reliable supply of recycled water that meets California recycled water quality standards set forth in Title 22 of the California Code of Regulations.
Groundwater agencies	Not applicable.
Planning agencies	The SRCSD, in conjunction with the affected city governments, plays a key role in conducting data and customer assessments, as well as analyzing community and economic impacts.

4.8.2 Wastewater Quantity, Quality, and Current Uses

Municipal wastewater is generated in the District's service area from a combination of residential and commercial sources. The quantities of wastewater generated are generally proportional to the population and the water use in the service area. Although SRCSD does not meter the amount of wastewater generated from within the District's service area, SRCSD was able to provide an estimate of wastewater flow based on parcel information. Individual parcels were provided to SRCSD to be used as input in SRCSD's hydraulic model. Using existing and predicted land use information, SRCSD estimated wastewater flows for the existing and build-out situation.

Table 4-13 summarizes the estimates of existing and projected volumes of wastewater collected and treated in the District. Table 4-14 lists the existing and projected wastewater discharge. There is currently no recycled water usage within the District's service area. Table 4-15 has been intentionally left blank.

Table 4-13: Estimates of Existing and Projected Wastewater Collection and Treatment in ac-ft/yr (mgd) for the District

	2005	2010	2015	2020	2025	2030	2035
Projected population in service area	36,589	36,226	36,879	37,930	38,287	38,644	39,001
Wastewater collected & treated in service area	4,467 (3.99.)	4,423 (3.95)	4,503 (4.02)	4,631 (4.13)	4,675 (4.17)	4,718 (4.21)	4,762 (4.25)
Quantity that meets recycled water standard	112 (0.10)	111 (0.10)	113 (0.10)	116 (0.10)	117 (0.10)	118 (0.11)	119 (0.11)

Notes:
1. This table is based on the DWR Guidebook Table 21.
2. Values of wastewater collected and treated are estimated. For a description of the methodology, refer to the text.

Table 4-14: Estimates of Existing and Projected Disposal of Non-Recycled Wastewater In ac-ft/yr (mgd) for the District

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030	2035
River Discharge	Primary and Secondary	4,356 (4)	4,312 (4)	4,390 (4)	4,515 (4)	4,558 (4)	4,600 (4)	4,643 (4)

Notes:
1. This table is based on the DWR Guidebook Table 22.
2. Volumes of effluent discharged are estimated.

Table 4-15: Existing Recycled Water Use in the District		
Type of Use	**Treatment Level**	**2009 Use (ac-ft/yr)**
None	N/A	N/A

4.8.3 Potential and Projected Use

The Sacramento County Water Reclamation Study prepared in 1994 initiated an evaluation of the feasibility of recycled water use within the urban water districts of Sacramento County. Various markets for recycled water including agricultural irrigation, urban landscape irrigation, industrial water, groundwater recharge, and wetland enhancement were evaluated using economic and non-economic criteria. The report identified 27 users within the District that could utilize recycled water such as schools, parks, and churches. The total estimated demand was 806 acre-feet per year in 1994. These demands do not include residential landscape irrigation. Although 27 users were identified within the District service area, it is possible some of the users receive water from sources other than the District such as private groundwater wells. If recycled water was used at these sites, the total water demand of the District would not be reduced.

Although a potential recycled water demand of 806 acre-feet was identified within the District based on the 1994 study, the number may be much less based on dedicated irrigation accounts. In its 2010 CUWCC report, the District reported 112 metered accounts for dedicated irrigation with approximately 383 acre-feet of water delivered. The potential for recycled water demand is not anticipated to drastically increase since the District is close to build-out and schools and parks are already in place.

The extent to which recycled water is available in the future in the District's service area depends on the growth of the SRCSD recycled water program. In the short-term, recycled water is not a viable option to reduce the District's total water demand because it is a significant distance from the source of recycled water at Sacramento Regional Wastewater Treatment Plant (SRWTP). The cost of conveying recycled water to the District's service area from the regional plant would be prohibitively expensive. Therefore, future use of recycled water within the District is not anticipated through 2035.

The only feasible way recycled water could be available to the District would be if SRCSD built a satellite water reclamation facility north of the American River. However, it is unlikely that satellite reclamation plants would be built in the foreseeable future as part of SRCSD's water recycling program. SRCSD is near completion on a recycled water master plan and there are no plans for a satellite treatment near the District. A satellite treatment plant near the District was also not recommended in the SRCSD's 2020 Master Plan. Therefore, Table 4-16, Table 4-17 and Table 4-18 have intentionally been left blank.

Table 4-16: Potential Future Recycled Water Use in ac-ft/yr								
Type of Use	**Treatment Level**	**Description**	**Feasibility**	**2010(2)**	**2015**	**2020**	**2025**	**2030**
None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
1. This table is based on the DWR Guidebook Table 23.
2. Based on actual year.

Table 4-17: Projected Future Recycled Water Use in ac-ft/yr						
Type of Use	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
None	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-18: Comparison of Recycled Water Uses—Year 2005 Projections versus 2010 Actual		
Type of Use	**2005 Projection for 2010**	**2010 Actual Use**
None	N/A	N/A

Note:
This table is based on the DWR Guidebook Table 24.

4.8.4 Optimization and Incentives for Recycled Water Use

Because SRCSD is not currently, nor in the foreseeable future, considering a water recycling program for the areas north of the American River in Sacramento County, it is not practicable to provide a recycled water optimization plan that includes actions to facilitate the installation of dual distribution systems and promote recycled water uses. Without plans by SRCSD to construct satellite reclamation plants, use of recycled water to meet water demands in the District does not appear feasible. Therefore, Table 4-19 is not applicable for the District's service area and has been intentionally left blank.

However, if and when the SRCSD decides to implement a recycled water project, the District will support the project by encouraging recycled water use among its customers where feasible.

Table 4-19: Methods to Encourage Recycled Water Use and the Resulting Projected Use in ac-ft/yr					
Actions	**2010**	**2015**	**2020**	**2025**	**2030**
None	N/A	N/A	N/A	N/A	N/A

Note:
This table is based on the DWR Guidebook Table 25.

Chapter 5: Water Quality

Section 10634 of the Act requires an analysis of water quality issues and their impact to supply reliability. The Act states as follows:

> *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.*

5.1 Water Quality Issues

As required by the Safe Drinking Water Act, the District provides annual Water Quality Reports to its customers; also known as Consumer Confidence Reports (CCR). This mandate is governed by the United States Environmental Protection Agency (USEPA) and the California Department of Public Health (CDPH) to inform customers of their drinking water quality. In accordance with the Safe Drinking Water Act, the District monitors regulated and unregulated compounds in its water supply and in years past, the water delivered to the District meets the standards required by the state and federal regulatory agencies. A copy of the District's 2010 CCR is enclosed as Appendix F.

5.1.1 Surface Water Quality

The District receives treated surface water from SJWD. SJWD diverts American River water stored behind Folsom Dam and treats it with conventional filtration and chlorine disinfection at the Sydney N. Peterson WTP located west of Folsom Dam. SJWD tests its water for over 200 contaminants on a daily, weekly, monthly, and/or annual basis. SJWD is responsible for delivering treated surface water that meets state and federal standards to the District. The SJWD continues to provide high quality surface water to the District and there are no anticipated water supply impacts due to surface water quality issues.

5.1.2 Groundwater Quality

In general, the District's wells are of excellent water quality. Each of the District's groundwater wells is regularly sampled and confirmed to complete with Title 22 drinking water regulations. In addition, the SGA manages the Basin and conducts a comprehensive water quality monitoring program. SGA collects data from over 260 wells in the region for inclusion in the Data Management System. The Data Management System includes groundwater quality data from 1991 through the present. The groundwater quality issues facing the Basin are addressed in the Groundwater Management Plan and are summarized below for the region. While most of the constituents listed do not impact the District's wells, information specific to the District is provided where appropriate.

Total Dissolved Solids (TDS)
Based on sampled 107 supply wells, TDS results are reported to be generally within the secondary drinking water standard of 500 milligrams per liter (mg/L). TDS in SGA member agency wells ranges from 100 mg/L to 840 mg/L, with an average of 266 mg/L.

Iron
The secondary MCL for iron is 300 micrograms per liter (µg/L). In general, dissolved iron is not a problem in the SGA public supply wells. Out of 122 supply wells sampled from 2005 to 2006, 18 wells are reported with concentrations exceeding secondary MCL.

Manganese
The secondary MCL for manganese is 50 µg/L. In general, dissolved manganese is not a significant problem in the SGA public supply wells. Out of 119 SGA member agency supply wells sampled from 2005 to 2006, 89 wells were below the reporting limit of 10 µg/L. 14 wells are reported with concentrations exceeding the secondary MCL.

Arsenic
Out of 120 wells sampled from 2005 to 2006, 8 wells were below the analytical detection limit of 2 µg/L. Of the remaining wells with values above the detection limit, average concentration is 3.7 µg/L, with two wells in the SGA service area exceeding the federal MCL of 10 µg/L.

Nitrates
The maximum contaminant level (MCL) in California according to Title 22 standards for Nitrate as NO_3 is 45 milligrams per liter (mg/L). Out of the 185 SGA wells sampled from 2005 to 2006, the average concentration was 9.3 mg/L. District wells nitrate concentrations vary from non-detect to 3 mg/L.

Chromium and Chromium (VI)
Chromium has a MCL of 50 µg/L. Chromium (VI), which has been found to be the primary toxic form of Chromium does not have a MCL, but California has recently adopted a public health goal (PHG) of 0.02 µg/L and is progressing towards regulating this constituent. Results from monitoring within the Basin indicate Chromium concentrations range from non-detect (less than 1 µg/L), to 52 µg/L. The average value of Chromium in the District groundwater wells sampled is between 8 to 12 µg/L. The average value of Chromium (VI) in the groundwater wells sampled in the District is below the current detection limit of 1 µg/L.

Radon-222
According to the District's CCR, Radon-222 levels range from 123 to 885 picocuries per liter (pCi/L). There is no standard MCL for Radon and it is currently an unregulated drinking water constituent. The USEPA, however, has started the process to implement a regulated MCL of 300 pCi/L for a community water system not having a Multimedia Mitigation Plan and 4,000 pCi/L for those with a plan.

Contaminant Plumes
The Data Management System includes data on major regional groundwater contaminant plumes in the region. The identified plumes within the Basin north of the American River are from the former McClellan Air Force Base (AFB) and the Gencorp/Aerojet property. The McClellan AFB plume is down gradient from the District's wells and does not impact groundwater quality for the District.

The Aerojet contaminant plume originates from historical improper waste disposal from its 8,000 acre rocket propellant manufacturing facility located south of the American River. The contaminant plume is comprised of several contaminants including trichloroethene (TCE), tetrachloroethene (PCE), N-nitrosodimethylamine (NDMA), perchlorate, and other volatile organic compounds (VOCs). The TCE component of the plume extends from the Aerojet property near Rancho Cordova, CA to north of the American River into the District's service

area. The Aerojet plume is a regulated Superfund site per the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and is closely monitored by water purveyors in the region and regulatory agencies including the USEPA, the Central Valley Regional Water Quality Control Board, and the Department of Toxic Substances Control.

Since the plume's discovery within the District's service area, Aerojet has installed a groundwater remedy that includes extraction and treatment of the contaminated groundwater. The remedy is designed specifically to intercept and capture the contaminant plume before it reaches the District's supply wells. A network of monitoring wells is also in place that are closely monitored by Aerojet and the District to ensure the installed remedy continues to protect the District's supply wells. Should the District's wells become contaminated in the future, provisions are in place to secure and provide replacement water supplies to offset the District's lost capacity.

5.1.3 Distribution System Water Quality

Distribution system water quality monitoring is performed for several water quality parameters in the District, including general physical parameters, presence of coliform bacteria, disinfectant and disinfection by-product levels, and corrosivity of the water by monitoring lead and copper levels at customers' water taps. All monitoring parameters and levels currently meet drinking water standards. The ability to continue to meet these standards is not expected to change in the foreseeable future and does not present a potential impact to water supply reliability.

5.1.4 Groundwater Quality Programs

The District prepared a vulnerability assessment of the District's drinking water wells in 2002. The groundwater sources were found to be most vulnerable to possible contamination from commercial urban activities such as active and historic gas stations, dry cleaners, leaking underground storage tanks, and sewer collection systems. The District continues to monitor its groundwater wells for the first indication of problems as part of its water management strategy.

Likewise, SGA supports and is involved in addressing water quality concerns of the Basin. Some of the programs and activities include:

- Groundwater Quality Monitoring – SGA has installed a series of shallow (less than 200 feet deep) monitoring wells in the basin funded by a Local Groundwater Assistance Grant from the Department of Water Resources. These wells serve as an early warning system for contaminants that could be migrating to greater depths, where the majority of municipal drinking water wells are completed. In addition, SGA has incorporated water quality data from wells within the United States Geological Survey (USGS) National Water Quality Assessment (NAWQA) program and worked with Air Force Real Property Agency (AFRPA) to identify a subset of monitoring wells located in and around the former McClellan AFB that will also be integrated into future SGA monitoring efforts.

- Groundwater Resource Protection – The first line of defense for groundwater resource protection is the prevention of contamination. Prevention measures include proper well construction and destruction practices, development of wellhead protection measures, protection of recharge areas, control of the migration and remediation of contaminated groundwater, and control of saline water intrusion. One protection measure is the establishment of the consultation zone. If a well's location is proposed within 2,000 feet

(consultation zone) of a known contaminant plume, Sacramento County Environmental Management Department requires a special review of the permit by appropriate regulatory agencies.

5.1.5 Water Quality Effects on Water Management Strategies and Supply Reliability

The District has not experienced any significant water quality problems in the past. Although the District has not had water quality problems in the past, groundwater contamination is a specific water quality threat that may impact the District's planning and operational strategies for a safe and reliable water supply in the future. The District's plan is to mitigate for potential problems prior to any loss in supply. Currently and in the future, the District does not anticipate any reduction in supply due to water quality issues. The following sections describe water management strategies being implemented by the District in response to the threat of groundwater contamination.

Aerojet Plume

The District's water management strategy related to the threat of groundwater contamination included successfully collaborating with Aerojet and regulatory agencies to install groundwater extraction and treatment facilities to treat and contain the TCE plume. Groundwater monitored wells continue to be installed and tested as part of the required remedy to measure plume migration and confirm capture. The District will also continue its involvement on the Groundwater Contamination Committee, through the SGA, to increase the awareness of groundwater contamination and the effects it would have on future drinking water supplies.

The District has the right to beneficially use groundwater underlying the District service area to meet its customers' need for drinking water. Even if none of the District's wells are contaminated, Aerojet's extraction facilities may hinder the District's right to develop groundwater resources in the future. Per the Water Forum Agreement, the San Juan Family of water agencies (including the District) is committed to increasing its use of groundwater during drier years and therefore protection within the Basin is essential. Protection of the Basin must involve both the removal of contaminants and in-basin disposal alternatives for the treated groundwater to minimize the depletion of the Basin by excessive pumping for remediation purposes.

It continues to be the District's opinion that any water extracted from the Basin, within the community of Fair Oaks, by Aerojet is subject to the prior water rights of the District. The District's six water supply wells draw groundwater from aquifers where contamination is present and from which Aerojet operates its groundwater extraction system. This groundwater must remain within the Basin and any water that leaves the Basin must be replaced, to the District, gallon for gallon by another source of supply.

Methyl Tertiary-Butyl Ether (MTBE)

Although MTBE has not been detected in any of the District's wells, there are a number of identified sites with leaky underground storage tanks (LUST) throughout the District's service area. Within the Basin, approximately 190 active LUST sites have been identified. In response to the MTBE contamination, the District filed a lawsuit in 2003 against nine oil and petroleum-related companies in conjunction with nine other litigants. The suit seeks funding from the responsible parties to pay for the investigation, monitoring, and removal of oxygenates from the

Basin. As of 2010, the responsible parties are monitoring the groundwater and providing results to the District.

5.2 Projected Impacts of Water Quality on Supply

Table 5-1 provides as summary of projected water supply changes due to water quality issues.

Table 5-1: Summary of Projected Water Supply Changes Due to Water Quality Issues in ac-ft/yr

Water Source	Description of Condition	2005	2010	2015	2020	2025	2030
Surface Water – Treated SJWD Projected Change (percent)	None	0	0	0	0	0	0
Groundwater – (total of 6 wells) Projected Change (percent)	None	0	0	0	0	0	0

Note:
Table format based on DWR Guidebook Table 30.

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Chapter 6: Water Supply Reliability

Sections 10631 and 10635 of the Act require that an assessment of water service reliability for various climatic conditions be undertaken. The Act states:

Section 10631.

(c) (1) 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:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) 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.

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.

6.1 Reliability of Supply

For the purposes of this plan, reliability is a measure of a water service system's availability of water supply in various seasonal and climatic conditions, such as multiple year droughts. The combination of demand management and conjunctive supply options available to the District help to reduce the frequency and severity of shortages. The reliability of the District's water supply is dependent on the reliability of both surface water supplies and groundwater supplies. Surface water supplies are managed and delivered by San Juan Water District (SJWD), while the groundwater supplies are locally managed by the District with regional oversight provided by the Sacramento Groundwater Authority (SGA). The following sections provide a discussion of the District's surface and groundwater supply reliability.

6.1.1 Surface Water Supply Reliability

As previously noted, the District is a member agency of the San Juan Family and receives surface water from SJWD. From SJWD's 2010 Urban Water Management Plan, wholesale supply information was obtained for a normal year, single-dry year, and multiple-dry years. SJWD's primary goal is to provide reliable and safe water supplies to meet the water needs of its wholesale and retail service area at reasonable costs.

The reliability of portions of SJWD's water supply is potentially limited by the following:

- legal constraints that could result in USBR cutbacks on CVP supplies,
- voluntary restrictions per the Water Forum Agreement terms

In response to these challenges, SJWD continues to develop and encourage projects and programs to ensure reliability now and into the future. The following provides a brief summary of the various SJWD surface water supply contract sources and consideration of the terms of the Water Forum Agreement:

CVP Water Supply Reliability

Although SJWD has contracts with USBR for the delivery of CVP water, the contracted amount is not guaranteed each year. The amount of water available to the CVP contractors is based on the hydrologic conditions and operational flexibility opportunities within the CVP supplies. Each year USBR announces the water supply allocation for CVP water supplies. For example, SJWD's two USBR contracts are subject to 25 percent reductions during drought periods.

Water Forum and Hodge Decision

Limitations on the amount of water that can be diverted from the American River have been defined by the Water Forum Agreement based on unimpaired flows to Folsom Reservoir. The Water Forum Agreement as it applies to the San Juan Consortium stipulates as following:

- Most Years are defined as years when the projected March through November unimpaired inflow to Folsom Reservoir is greater than 950,000 acre-feet. In most years, SJWD may divert up to 82,200 acre-feet.

- Drier years are defined as years when the projected March through November unimpaired inflow to Folsom Reservoir is less than 950,000 acre-feet and equal to or greater than the 400,000 acre-feet. In drier years, SJWD will divert a decreasing amount of surface water from 82,200 ac-ft to 54,200 ac-ft in proportion to the decrease in unimpaired inflow to Folsom reservoir from 950,000 to 400,000 acre-feet. In drier years, SJWD will reduce its water demands by up to 15 percent and use groundwater to meet additional demands.

- Driest years (conference years) are defined as years when the projected March through November unimpaired inflow to Folsom Reservoir is less than 400,000 acre-feet. In the driest years, SJWD will reduce their diversion to 54,200 acre-feet, which is equivalent to their baseline amount (maximum diversion through 1995). In the driest years, SJWD will reduce its water demands by up to 15 percent and use groundwater to meet additional demands. SJWD will also meet with other Water Forum signatories to discuss how the available water should be managed to meet water purveyor demands and minimum flow requirements of the American River.

The Hodge decision can also legally constrain surface water diversions if minimum Hodge Flows in the Lower American River are not met. The Hodge decision was a judgment of the Superior Court for the County of Alameda (Environmental Defense Fund, Inc. vs. East Bay Municipal Utility District (EBMUD), Case No. 425955) that directed EBMUD to divert from the lower American River based on its CVP contractual entitlement only when specified flows would remain in the river. These flows came to be known as Hodge Flows. The Hodge Flows are 2,000 cfs from October 15 through the end of February, 3,000 cfs from March 1 through June 30, and 1,750 cfs from July 1 through October 14. "Below Hodge Conditions" refers to conditions when bypassing flow at Sacramento's Fairbairn WTP is less than the defined Hodge Flows. Although the Hodge Decision applies only to parties to that lawsuit, Water Forum signatories volunteer to observe the flow requirements when reasonable and feasible.

SJWD Reliability Analysis

SJWD's 2010 Urban Water Management Plan provided information regarding the demand on their wholesale supplies. SJWD projects a 33.6 percent increase in the normal year demand from 2010 through 2030. In estimating the single-dry year and multiple-dry year water demands, SJWD kept the assumptions made in the preparation of the 2003 Regional Water Master Plan. It was assumed that the overall demands in a single-dry year and multiple-dry years will not change from normal year demands because reduction programs implemented by water purveyors will offset the increased demand in irrigation.

Table 6-1 summarizes SJWD's current water supply availability projections for a normal year, single-dry year, and multiple-dry years. The restrictions listed are based on Contract and Water Forum restrictions, enforceable by the USBR. It is assumed that the maximum CVP restriction will be 75% of total Contract for each scenario. SJWD assumes that those agencies with groundwater supplies will rely on groundwater to replace the reduced surface water supplies. SJWD also assumes that groundwater quantity is generally unaffected by short-term drought conditions and groundwater pumping will be managed through SGA.

Table 6-1: Projected Wholesale Water Supply Reliability in ac-ft/yr

Source	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years		
			Year 1	Year 2	Year 3
Surface Water					
USBR CVP	11,200	8,400	8,400	8,400	8,400
USBR CVP (Fazio Water)	13,000	9,750	9,750	9,750	9,750
Placer County Water Agency (PCWA)	25,000	25,000	25,000	25,000	25,000
Surface Water Pre-1914 Right	33,000	33,000	33,000	33,000	33,000
Total Contract Supply	82,200	76,150(1)	76,150(1)	76,150(1)	76,150(1)
Water Forum Restriction	None	54,200 – 82,200	54,200 – 82,200	54,200 – 82,200	54,200 – 82,200
Wholesale customer agency additional groundwater	0	0 – 6,614	0 – 6,614	0 – 6,614	0 – 6,614

6.1.2 Groundwater Supply Reliability

The District's groundwater supply is assumed to be reliable under all hydrologic conditions. Under a dry and multiple-dry year scenario, it is assumed that groundwater use will increase to offset potential surface water supply reductions in accordance with the commitments of the Water Forum Agreement.

6.1.3 District's Water Supply Reliability

As mentioned earlier, the District has commitments to receive up to 14,984 acre-feet of surface water from SJWD through the year 2030. In the Water Forum Agreement, the San Juan family committed to providing supplemental water (groundwater use, water rationing, and conservation) to decrease their use of surface water during the dry and driest years. The reduction in SJWD's normal wholesale surface water supply of 82,200 acre-feet to 54,200 acre-feet during a single-dry year and multiple-dry years means that up to 6,614 acre-feet of supplemental water may be needed by the San Juan Family. It is assumed this supplemental water will be groundwater from San Juan wholesale member agency wells.

Since the projected San Juan Family wholesale demands through 2030 are within the contracted range of surface water available in all hydrologic conditions, SJWD shows no reduction in supply during a single-dry year or multiple-dry year scenario. Therefore, the entire 14,984 acre-feet of surface water is considered available to the District in a normal year, single-dry year, and multiple-dry years. The San Juan Family is signatory to the Water Forum Agreement and each of the San Juan Family member shares the responsibility for reduction of surface water supplies as well as increases in groundwater production when required. The District recognizes the Water Forum Agreement and understands the importance of using groundwater supplies during drier periods to offset the use of surface water.

To the extent surface water supplies are reduced below the projected SJWD supply of 14,984 acre-feet, the District will rely on its groundwater sources. The District will also implement conservation measures defined in their water contingency shortage plan and as discussed in Chapter 7. At this time, the District anticipates meeting 90 percent of its water demands with surface water. In addition, the District may enter into an agreement with SJWD in the future to pump groundwater in-lieu of purchasing surface water to assist the San Juan Family in meeting its water demands.

Table 6-2 presents water supply projections for purchased water and groundwater sources during a normal year, a single-dry year, and multiple-dry years for the District for the year 2035. Only the projected supply requirements are shown; as previously discussed, the District has access to up to 14,984 ac-ft/yr of surface water and 8,388 ac-ft/yr of groundwater.

Table 6-2: Supply Reliability for the Fair Oaks Water District for Year 2030 in ac-ft/yr

Source	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years		
			Year 1	Year 2	Year 3
Groundwater, FOWD (2)	8,388	8,388	8,388	8,388	8,388
Surface Water, SJWD (3)	14,894	14,894	14,894	14,894	14,894
Total	23,282	23,282	23,282	23,282	23,282
Percent of Normal		100%	100%	100%	100%

Notes:
1. Table format based on DWR Guidebook Table 28.
2. Total firm groundwater capacity, assuming one largest production well offline.
3. Based on SJWD 2010 UWMP Table 3-11 Sales to Other Water Agencies

Table 6-3 lists single-dry year and multiple-dry year periods for both groundwater and purchased water supplies. The base water year used by SJWD to establish water supply reliability for a single-dry year is the 1976-1977 water year whereas the years 1990 to 1992 were selected as the multiple-dry years. The existing water supplies are not expected to change in the future and will remain constant through 2035. SJWD holds surface water rights and contracts totaling 82,200 acre-feet. SJWD's 2010 Urban Water Management Plan provided water supply reliability information for each of their water supply sources during a single-dry year and multiple-dry years. SJWD assumes that the supplies for the single-dry year and multiple-dry years are the same as those supplies defined in the Water Forum Agreement for the driest years or conference years.

SJWD and the District did not project any increases in a single-dry year or multiple-dry year demand from a normal year demand. The District's water records indicate a similar trend. Although historically for the District, demands slightly decreased during drier periods, the demands applied in the water supply reliability analysis remain constant for a single-dry year and multiple dry years as the wholesale demands did in SJWD's 2010 Urban Water Management Plan.

Table 6-3: Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Surface Water		
Normal Water Year		
Single-Dry Water Year	1977	
Multiple-Dry Water Years	1990-1992	
Groundwater		
Normal Water Year	1991	1956-2004
Single-Dry Water Year	1994	1956-2004
Multiple-Dry Water Years	2002-2004	1956-2004

Notes:
1. Table format based on DWR Guidebook Table 27.
2. Data used was from the Western Regional Climate Center record of precipitation at the Folsom Dam on water year basis.
3. Normal Water Year (WY) was calculated from median precipitation from WY 1956 – WY 2004.

6.1.4 Factors Resulting in Inconsistency of Supply

It's likely that the District's surface water supplies are vulnerable to water shortages due to the climatic environment and changes in unimpaired flow to Folsom Reservoir. The groundwater supplies, however, are not as vulnerable and will be used when surface water supplies are decreased. Therefore, the District's overall water supplies are not expected to be impacted by changes in climate. The water availability analysis was completed for normal, single-dry, and multiple-dry years and is presented in Table 6-5, Table 6-6, and Table 6-7, respectively. Response to a future drought or other water shortages would follow the implementation of the appropriate stage of the District's Water Conservation Requirements and Enforcement Measures as discussed in Chapter 8.

Table 6-4 presents factors that could potentially result in inconsistency of supply for the District.

Table 6-4: Factors Resulting in Inconsistency of Supply				
Name of Supply	**Legal**	**Environmental**	**Water Quality**	**Climatic**
SJWD	X	X	--	X
Groundwater, Sacramento Groundwater Basin	--	--	--	--`

Notes:
Table format based on DWR Guidebook Table 29.

6.2 Normal Water Year Analysis

Table 6-5 summarizes the service reliability assessment for a normal water year based on water supply and water demand projections.

Table 6-5: Comparison of Projected Normal Year Supply and Demand					
	2015	**2020**	**2025**	**2030**	**2035**
Water Supply Total (ac-ft/yr)	23,282	23,282	23,282	23,282	--
Water Demand Total (ac-ft/yr)	10,573	10,903	11,011	11,118	11,229
Difference (supply minus demand)	12,709	12,379	12,271	12,164	--
Difference as Percent of Supply	55%	53%	53%	52%	--
Difference as Percent of Demand	120%	114%	111%	109%	--

Note:
Table format based on DWR Guidebook Table 32.

6.3 Single Dry-Year Analysis

Table 6-6 demonstrates the reliability of water supplies to meet projected annual water demands for the District in a single-dry year.

Table 6-6: Comparison of Projected Supply and Demand for Single Dry Year					
	2015	**2020**	**2025**	**2030**	**2035**
Supply Total (ac-ft/yr)	23,282	23,282	23,282	23,282	--
Demand Total (ac-ft/yr)	10,573	10,903	11,011	11,118	11,229
Difference (supply minus demand)	12,709	12,379	12,271	12,164	--
Difference as Percent of Supply	55%	53%	53%	52%	--
Difference as Percent of Demand	120%	114%	111%	109%	--

Note:
Table format based on DWR Guidebook Table 33.

6.4 Multiple Dry-Year Analysis

Table 6-7 presents the projected multiple-dry year water supply and demand assessment.

Table 6-7: Projected Multiple-Dry Year Water Supply and Demand Assessment

Year	Supply (ac-ft/yr)	Demand (ac-ft/yr)	Difference	Difference as Percent of Supply	Difference as Percent of Demand
2011					
2012					
2013	23,282	11,064	12,218	52%	110%
2014	23,282	10,818	12,464	54%	115%
2015	23,282	10,573	12,709	55%	120%
2016					
2017					
2018	23,282	10,771	12,511	54%	116%
2019	23,282	10,837	12,445	53%	115%
2020	23,282	10,903	12,379	53%	114%
2021					
2022					
2023	23,282	10,968	12,314	53%	112%
2024	23,282	10,990	12,292	53%	112%
2025	23,282	11,011	12,271	53%	111%
2026					
2027					
2028	23,282	11,076	12,206	52%	110%
2029	23,282	11,097	12,185	52%	110%
2030	23,282	11,118	12,164	52%	109%

Notes:

1. This assessment is based on the 3-year multiple-dry year period ending in 2015, 2020, 2025, and 2030.
2. Table format based on DWR Guidebook Table 34.

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Chapter 7: Conservation Program and Demand Management Measures

This Chapter addresses the water conservation requirements of the Act for the Fair Oaks Water District (FOWD) and includes a summary of current and planned Demand Management Measure (DMM) implementation and an overview of the proposed program for compliance with SBX7-7 which requires 20 percent statewide reduction in urban water use by 2020. The DMM portions of the Act state the following:

Section 10631.

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

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

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush (ULFT) toilet replacement programs.

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

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

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

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

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

7.1 Conservation Program Background

In 1998, the District became signatory to the Memorandum of Understanding Regarding Water Conservation in California (MOU) and a member of the California Urban Water Conservation Council (CUWCC), establishing a firm commitment to the implementation of the Best Management Practices (BMPs) or DMMs. The CUWCC is a consensus-based partnership of agencies and organizations concerned with water supply and conservation of natural resources in California. By becoming a signatory, the District committed to implement a specific set of locally cost-effective conservation practices.

The MOU and associated BMPs were revised by the CUWCC in 2008, which is equated to the DMMs per Section 10631(j) of the Act. The revised BMPs now contain a category of "Foundational BMPs" that signatories are expected to implement as a matter of their regular course of business. These include Utility Operations (metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and water waste ordinances) and Public Education (public outreach and school education programs). The remaining BMPs are generally quantifiable (the water savings achieved from implementation can be directly calculated) and are called "Programmatic BMPs." Programmatic BMPs are divided into Residential, Large Landscape, and CII categories. These revisions are reflected in the CUWCC's BMP reporting database starting with reporting year 2009. The revised BMP organization is also reflected in the 2010 UWMP's DMM compliance requirements. A summary of the DMMs described in the Act and the current CUWCC BMP organization is presented in Table 7-1 for reference.

Table 7-1: CUWCC BMP and UWMP DMMs Organization and Names					
CUWCC BMP Organization and Names (2009 MOU)				**UWMP DMMs**	
Type	Category	BMP #	BMP name	DMM #	DMM name
Foundational	Operations Practices	1.1.1	Conservation Coordinator	L	Water conservation coordinator
		1.1.2	Water Waste Prevention	M	Water waste prohibition
		1.1.3	Wholesale Agency Assistance Programs	J	Wholesale agency programs
		1.2	Water Loss Control	C	System water audits, leak detection, and repair
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	D	Metering with commodity rates for all new connections and retrofit of existing connections
		1.4	Retail Conservation Pricing	K	Conservation pricing
	Education Programs	2.1	Public Information Programs	G	Public information programs
		2.2	School Education Programs	H	School education programs
Programmatic	Residential	3.1	Residential assistance program	A	Water survey programs for single-family residential and multi-family residential customers[(1)]
				B	Residential plumbing retrofit
		3.2	Landscape water survey	A	Water survey programs for single-family residential and multi-family residential customers[(1)]
		3.3	High-Efficiency Clothes Washing Machine Financial Incentive Programs	F	High-efficiency washing machine rebate programs
		3.4	WaterSense Specification (WSS) toilets	N	Residential ultra-low-flush toilet replacement programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	I	Conservation programs for commercial, industrial, and institutional accounts
	Landscape	5	Landscape	E	Large landscape conservation programs and incentives

Note:

1. Components of DMM A (Water survey programs for single-family residential and multi-family residential customers) applies to both BMP 3.1 (Residential assistance program) and BMP 3.2 (Landscape water survey).

7.2 Implementation of BMPs/DMMs

This section provides a description of the various programs and conservation activities implemented in the District. Signatories to the MOU are permitted by Water Code Section 10631(j) to include their biennial CUWCC BMP reports in an UWMP to meet the requirements of the DMMs sections of the UWMP Act if the agency is meeting all provisions of the MOU. The District CUWCC BMP coverage reports for 2009 and 2010 are included in Appendix D and supplements the summary of BMP implementation activities provided in this chapter.

The District is progressing towards implementing all Foundational BMPs required in the revised MOU and UWMP Act. In order to maintain consistency with the SBX7-7 planning process, the District has chosen to comply with the remainder of the CUWCC MOU through the gpcd compliance option. The gpcd compliance option allows MOU signatories to employ any conservation program approach that attains a two percent per year per capita savings, for a total reduction of 18 percent by 2018. Since the CUWCC water savings goal is consistent with the 20 percent water savings requirement for SBX7-7, the CUWCC MOU and SBX7-7 compliance strategies are the same and the terms are used interchangeably throughout this chapter. Although current and planned implementation of programmatic BMPs need not be demonstrated under the gpcd compliance approach, a discussion of conservation programs and accomplishments in the District is provided for information.

The District partners with RWA which is a joint powers authority that serves and represents the interests of 21 water providers in the greater Sacramento region. The purpose of RWA is to help its members protect and enhance the reliability, availability, affordability and quality of water resources through customer outreach/program education. In partnership with RWA as well as the District's wholesaler San Juan Water District (SJWD) and Sacramento Municipal Utility District (SMUD), the District provides its customers with High Efficiency Toilet (HET) and High Efficiency Clothes Washer (HECW) rebates, indoor and outdoor residential surveys, a conservation garden, as well as various educational programs to encourage water conservation.

7.3 Foundational BMPs

7.3.1 Utility Operations

7.3.1.1 Conservation Coordinator

This BMP is implemented. The District has one Conservation Coordinator.

7.3.1.2 Water Waste Prevention

This BMP is implemented through a Board approved conservation Policy, Number 6060 (Appendix J), titled "Water Conservation." The policy has 5 different stages: (1) Normal water supply, (2) water alert, (3) water warning, (4) water crisis: short-term or long-term, and (5) water emergency: short term or long term. This policy sets forth water use enforcement policies, jurisdiction to declare a stage level and definitions for water use at each stage. Water conservation restrictions include:

- Use of potable water which results in flooding or runoff in gutters or streets.
- Use of free-flowing hoses.

- Use of water for washing streets, parking lots, driveways, sidewalks, or buildings except as necessary for health, aesthetic or sanitary purposes.
- Use of potable water for filling or refilling of swimming pools.
- Use of potable water for construction purposes.
- Use of potable water for more than minimal landscaping.

In addition to the list above, reduction of indoor water use may be required as well as more stringent measures described in the Policy. This Policy prohibits negligent or wasteful use of water, creates a process for mandatory conservation and rationing, and promotes the use of water saving devices.

7.3.1.3 Water Loss Control

The District is in the process of completing its residential metering implementation program, therefore water losses cannot be quantified at this time and this BMP is not fully implemented. However, the District has implemented a number of measures to reduce unaccounted for water including:

- Conducting leak detection and repair programs - locating system leaks and repairing leaks immediately
- Identification and Replacement of steel piping that is in service within the District boundaries
- Updated master plan that identifies all steel piping and piping with a history of seepage

Implementation Steps and Schedule

The District plans on completing all meter installs within the district by the end of 2011, with implementation of metered billing starting January 2012. After all meter installations are complete, the District will implement the American Water Works Association (AWWA) M36 Water Loss Control Protocol to satisfy the requirements of the Water Loss Control BMP.

7.3.1.4 Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections

The District has recently completed installing meters on all service connections as required by AB 2572. Service connections will be billed volumetrically beginning January 1, 2012.

Implementation Steps and Schedule

The District is on track to retrofitting all service connections with meters by the end of 2011.

7.3.1.5 Retail Conservation Pricing

All retail customers in the District will be billed volumetrically. Residential customers with meters can volunteer to be billed volumetrically, instead of using a fixed rate, starting in 2012 when all residential customers are expected to have meters. Starting in 2012, all customers will be billed volumetrically.

The current rate structure for non-residential customers and residential customers who chose to be billed volumetrically has a fixed charge as well as a uniform volumetric charge. The fixed charge is determined based on the meter size. Non-metered residential customers continue to be charged on a flat rate basis.

Implementation Steps and Schedule

2009 and 2010 volumetric and fixed price revenue data for the District are summarized in the BMP Coverage Report located in Appendix D. In 2010, volumetric revenue consisted of 3% of the total revenue for the District. Although this value is below the proposed 2012 goal of 70%, it is expected that change in the rate structure from fixed to volumetric in 2012 will allow the District to progress towards fulfilling the requirements of the Retail Conservation Pricing BMP in the future.

7.3.1.6 Education

Public Information Programs

The District administers public information programs for its customers and receives additional public outreach support through its partnership with RWA's Regional Water Efficiency Program (RWEP). The RWEP has a regional outreach program coordinated with support from a Public Outreach and School Education Committee comprised of RWEP member conservation coordinators and Public Information Officers.

In 2005, the Regional Water Efficiency Program developed a new logo and theme for the "Be Water Smart" public information campaign. To kick off the campaign, RWA undertook a host of outreach activities including a region-wide "Ultimate Garden Makeover Contest" in 2008 and 2009. Overall, goals of the Be Water Smart program are to:

- Increase the number of Water-Wise House Call requests
- Increase visibility for RWA's water conservation messages in the local media
- Drive traffic to the RWA website and Be Water Smart hotline

In 2010, the RWA and 19 local water providers announced a new public outreach and advertising campaign called "Blue Thumb". The campaign is designed to help residents use less water outdoors. With the Sacramento region's hot, dry climate and long summer season, more than 65 percent of a household's yearly water consumption typically goes toward landscape irrigation. Of that, 30 percent is lost due to overwatering or evaporation, and is the target of the campaign messaging with the call for customer behavioral changes in watering practices.

Goals for RWA's Public Information Campaign

- Raise awareness about the need to use water efficiently outdoors.
- Motivate target audience to undertake key behaviors that are most likely to reduce outdoor water use.

Target Audience for the Regional Public Information Campaign

- Residential water customers within the RWEP participant area.
- In particular, RWA and Association of California Water Agencies (ACWA) surveys show women over age 50 are most willing to adopt water-efficient behaviors

The ongoing regional campaign shows residents how to use water efficiently outdoors through every-day tasks such as adjusting their irrigation system according to the season or using a shut-off nozzle on their hose. It stars well-known community influencers, including Sacramento Mayor Kevin Johnson, Meteorologist Elissa Lynn and Dinger of the Sacramento River Cats, plus six local residents showing off their “Blue Thumb” and demonstrating how they made a personal commitment to use water wisely.

The Blue Thumb Campaign has a website (BeWaterSmart.info) where visitors can take the pledge to use water wisely and view video clips from spokespersons, such as Sacramento Mayor Kevin Johnson, and campaign participants explaining how they earned their Blue Thumb. The website has been expanded to be a more comprehensive water conservation related site.

In addition, the District also partners with SMUD and SJWD to produce a yearly newsletter, support the Fair Oaks Horticulture Center, provide customers with a conservation garden, as well as support the San Juan Water Agency Poster Contest that is conducted in local schools. The District also participates in various other community events.

RWA and District outreach activities completed between 2006 and 2010 are summarized in Table 7-2.

Table 7-2: Outreach Activities

Item	2006	2007	2008	2009	2010
Paid Advertising	4	11	13	0	0
Public Service Announcement	4	2	823	0	0
Bill Inserts / Newsletters / Brochures	8	5	4	18	10
Bill showing water usage in comparison to previous year's usage	No	No	No	No	No
Demonstration Gardens	1	1	2	1	1
Special Events, Media Events	9	7	7	7	11
Speaker's Bureau	1	0	8	0	0
Program to coordinate with other government agencies, industry, public interest groups and media	Yes	Yes	Yes	Yes	Yes

Implementation Steps and Schedule

The implementation schedule for 2011-2015 includes plans to continue to promote water conservation through the Regional Water Efficiency Program’s outreach program supplemented by the District’s outreach efforts. The RWEP 2010 budget for public outreach was $82,154.

The District will continue to support community events similar to those conducted in the past as described above.

School Education Programs

The District partners with RWA's RWEP to provide customers with a school education program. The RWEP program has focused mainly on K-8 programs. RWEP has continued to use the legacy Sacramento Bee Newspapers in Education (NIE), now called Media in Education (MIE) program that originated back in the mid-1990s as part of the Sacramento Area Water Works Association (SAWWA) program in order to meet the baseline requirements for school education outreach. It includes an annual Water Conservation Pledge and Quiz Contest. It is estimated that a total of 33,932 students have been educated since inception.

Between 2004 and 2008, RWEP also sponsored the Great Water Mystery School Assembly program that was co-funded with the Sacramento Stormwater Quality Partnership. Over the years, a total of 60,208 students in Grades 3-6 were educated about benefits of better water management practices at home to save water resources and reduce polluted stormwater runoff.

In Fiscal Year 2011, RWEP embarked on a new program, in partnership with the Bureau of Reclamations' American River Water Education Center, and the Water Education Foundation to include sponsorship of Project WET school teacher workshops. A total of 25 teachers attended the first workshop in April 2011.

In addition, the school program provides K-4th graders with "Water Conservation and You" booklets, teachers with online Be Water Smart teacher guides and activities, classrooms with California waterway maps and students with supplements written by an award-winning environmental educator.

Table 7-3 provides a summary of program participation results between 2006 and 2010 (data provided in Fiscal Year).

Table 7-3: School Education Activities

	2006	2007	2008	2009	2010
Presentations	2	2	2	8	9
Grade	4th-6th	4th-6th	4th-6th	K-6th	K-6th
Number of students	200	200	150	4,247	5,172

Implementation Steps and Schedule

RWA, is in the process of evaluating whether a more effective school program that will reach more students is warranted. Working with the RWEP members and local educators, RWA plans to: (1) evaluate the existing program; (2) evaluate the success of other programs in the region and around the state; (3) develop objectives and a target audience (e.g., grade level); (4) adjust materials; and (5) create an implementation strategy for the school education program into the future.

RWEP plans to continue with regional school education program activities along with distribution of school-age educational materials and Project WET Workshops. The school schedule dictates when participation in the RWEP school education program occurs and follows the months that schools are in session from August to the following May. The annual budgeted direct expenses for the regional school education program for 2010 were $21,500.

7.3.1.7 Methods Used to Evaluate Effectiveness and Water Savings from Foundational BMPs

Effective implementation of the Foundational BMPs is critical to ensuring the long-term success of The District's conservation efforts. The District will utilize quantitative methods to assess the effectiveness of each BMP, to the extent practicable. For example, the District recently completed its metering program and is planning to transition to a volumetrically based billing system for all residential customers January 1, 2012. The District will track the impact of new conservation pricing by using its upgraded billing system to carefully monitor consumption of residential customers.

The effectiveness of implementing Public Education BMPs will be measured by tracking the number of public outreach events and education programs where customers receive information on conservation. A successful public information program should encourage customers to take advantage of conservation incentives being offered by the District, RWA, SJWD, and SMUD as Programmatic DMMs.

There are no quantifiable estimates of water savings applicable to the Foundational BMPs; however, by encouraging conservation, these measures will continue to contribute to reducing the District's water use.

7.4 Programmatic DMMs

The District intends to continue to comply with the MOU using the gpcd compliance. The baseline gpcd is equal to the average annual potable water gpcd for the years 1997 through 2006. This approach requires the purveyor to submit biennial gpcd target reports to the CUWCC. The biennial targets are computed by multiplying the District's baseline gpcd by the applicable reduced target, as a percentage. The targets gradually decrease to 82 percent of the baseline in 2018. This approach allows the District to choose which programs they would like to implement, as long as the combined water savings attributable to these programs is sufficient to meet their biennial gpcd targets. The gpcd compliance option water savings are comparable to those required by SBX7-7, as detailed in Section 7.5.

The gpcd compliance option does not require specific implementation plans for each programmatic BMP, therefore the following descriptions of current program offerings are provided for information purposes only. Water savings estimates are also not available for each program, as implementation levels have not been defined under the gpcd compliance option requirements. The District plans to continue to partner with SJWD, RWA and SMUD to support incentive programs.

7.4.1 Residential BMPs

7.4.1.1 Residential Assistance Programs

The District partners with RWA's Regional Water Efficiency Program to provide customers with conservation information. RWA estimated that it provided outreach and audit program information to 113,907 water customers, for all of their participating agencies, as a part of their program.

In addition to taking part in RWA's program, the District includes audits as an integral part of their metering program, distributes brochures at events not limited to Home &

Garden/Landscape venues, Harvest Festival, Halloween in the park, Folsom Dam Celebration and Fiesta Days, and provides welcome packets to all new owners in the District, encouraging customers to participate in their audit program.

7.4.1.2 Landscape Water Surveys

The District's program "Free Water Assessment Program" also provides customers with free landscape water surveys in which an expert comes to the customer's residence and examines the existing irrigation system, before offering recommendations that should increase the efficiency and effectiveness of the system. The representative also provides suggested timelines for best irrigation and planting.

7.4.1.3 High-Efficiency Clothes Washers

The District's customers are eligible to participate in the HECW provided in partnership with SMUD. The water efficiency of clothes washers is represented by the "water factor," which is a measure of the amount of water used to wash a standard load of laundry. Washers with a lower water factor save more water. The program eligibility requirement is currently set at a water factor of 6.0 or less. A washer with a water factor 4.0 saves over 10,000 gallons per year per washer over a conventional top loading washer.

7.4.1.4 WaterSense Specification (WSS) Toilets

The District's customers are eligible to participate in the 1.28 gallon per flush HET exchange program. The District offers a free HET to single family residential (Maximum of 2) and multifamily residential (Maximum of 10) customers in exchange for toilets that flush greater than 3.5 gallons per flush. These exchange events are usually held on two different Saturdays – One for the distribution and the other (two weeks later) to return the older toilet. The return is performed to ensure that the customer installed the toilet and that the new HET replaced a high-flush toilet. The District has partnered with Regional Water Authority Regional Water Efficiency Programs and SRCSD.

7.4.1.5 WaterSense Specification for Residential Development

Integration of WSS fixtures for new development will be accelerated by the 2010 California Green Building Standards Code (CAL Green Code), which became effective in January 2011. The CAL Green Code sets mandatory green building measures, including a 20 percent reduction in indoor water use, as well as dedicated meter requirements and regulations addressing landscape irrigation and design. Local jurisdictions, at a minimum, must adopt the mandatory measures; the CAL Green Code also identifies voluntary measures that set a higher standard of efficiency for possible adoption.

The District supports standards that will achieve a reduction in indoor water use including implementation and use of WSS fixtures as well as adoption of the CAL Green Code. The District will continue to support incentive programs for water efficient devices and standards.

7.4.1.6 Commercial, Industrial, and Institutional DMMs

The District offers all of its conservation programs through the District newsletter when published, bill inserts, billing notices, website and events. Currently, the toilet replacement project offers HET rebates to CII customers.

7.4.1.7 Large Landscape

The District offers irrigation audits to large landscape accounts through District newsletters, bills and community events. Information includes audit availability, controllers and services availability, over watering evaluations, specific drought watering instructions, drought resistant landscapes, irrigation strategies and other conservation methods. The District has saturated its large landscape accounts with surveys in recent years.

7.5 SBX7-7 Compliance Strategy

The SBX7-7 water use baseline for the District is 322 gpcd. The 2020 compliance goal requiring 20 percent water use reduction is 258 gpcd, as documented in Chapter 3. The CUWCC gpcd compliance option requires 18 percent water use reduction by 2018, which is consistent with the SBX7-7 20 percent water savings targets shown in Table 7-4. For this reason, the same compliance strategy will be implemented to meet both SBX7-7 and the MOU targets.

Table 7-4: SBX7-7 and CUWCC MOU Compliance Targets

		Targets		
	Baseline	**2015**	**2018**	**2020**
SBX7-7	322	290	--	258
CUWCC MOU – gpcd compliance option	330	--	270	--

Over the past 10 years, the District's commitment to implementing a comprehensive water conservation program have resulted in an approximately 21 percent decline in per capita water use from 367 gpcd in 2001 to 291 gpcd in 2010, which already nearly satisfies the 2015 interim 290 gpm target. The District is currently planning to increase water savings to achieve the 2020 258 gpcd target through the following approaches: a) ongoing implementation of the CUWCC's MOU and b) residential metering and 2012 implementation of commodity pricing structures. Completion of metering will also provide the District access to additional water management tools, such as the ability to fully evaluate and reduce unaccounted-for water losses where economically feasible. The District will monitor water savings achieved through implementation of these programs going forward, and make adjustments when required to ensure the District remains on track to comply with water savings targets by 2020.

7.5.1 Consideration of Economic Impacts

Funding for all District conservation activities is subject to approval by the ratepayers and District Board of Directors before programs can be implemented, therefore the economic impacts of complying with SBX7-7 have not yet been fully determined. However, since it is expected that most of the water savings required to comply with SBX7-7 will be achieved through metering, this approach should provide an equitable cost-sharing mechanism across all water use sectors. The annual costs associated with implementing all traditional CUWCC programmatic BMPs cannot be determined because it represents the combined efforts of RWA and the District, where funding levels, incentives and particular measures change from year to year. To continue benefiting customers, District will continue to take advantage of available partnership programs that will make conservation programs more efficient and cost effective.

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Chapter 8: Water Shortage Contingency Plan

Section 10632 of the Act details the requirements of the water-shortage contingency analysis. The Act states the following:

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:

(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.

(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.

(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.

(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.

(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.

8.1 Action Stages

In 1991, the District developed and adopted a five stage water conservation plan (Resolution No. 9609). In 2001, the District modified the Water Conservation Requirements and Enforcement Measures and adopted the amended plan on June 12, 2001 (Resolution No. 0109). The District's Water Shortage Contingency Plan (Water Conservation Policy, District's Policy No 6060) was adopted in April 13, 1993 and was amended in July 9, 2007. A copy of the District's Water Shortage Contingency Plan is located in Appendix E. The purpose of the Water Shortage Contingency Plan is to provide a guide to deal with extended water shortages in a timely and systematic manner. It provides procedures, rules, and regulations for mandatory water conservation that gain results while minimizing the effect of a water shortage on the District's customers.

The District has developed five stages of action to be taken in response to water supply shortages, up to 50 percent. The stages and their appropriate water supply condition are listed below:

- Stage 1 – Normal Water Supply: The District's water supply or distribution system is able to meet all the normal water demands of its customers in the immediate future.

- Stage 2 – Water Alert: There is a probability that the District's water supply or distribution system is not able to meet all the water demands of its customers.

- Stage 3 – Water Warning: The District's water supply or distribution system is not able to meet all the water demands of its customers.

- Stage 4 – Water Crisis: The District's water supply or distribution system is not able to meet all the water demands of its customers under Stage 3 requirements. Short term declaration is for water shortage conditions expected for duration of 45 days or less.

- Stage 5 – Water Emergency: The District is experiencing a major failure of water supply, storage, or distribution system facilities. Short term declaration is for water shortage conditions expected for a duration of 45 days or less.

Table 8-1 lists the water supply shortage stages and conditions.

Table 8-1: Water Supply Shortage Stages and Conditions

Stage No.	Water Shortage Supply Conditions	Shortage Percent
1	Normal Water Supply	0%
2	Water Alert	5 - 10 %
3	Water Warning	11 - 25 %
4 – Short Term	Water Crisis: Short Term	26 - 50 %
4 – Long Term	Water Crisis: Long Term	26 - 50 %
5 – Short Term	Water Emergency: Short Term	> 50 %
5 – Long Term	Water Emergency: Long Term	> 50 %

Note:
This table is based on the DWR Guidebook Table 35.

8.2 Minimum Supply

The Act requires 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 District's water supply.

Table 8-2 summarizes the minimum volume of water available from each source during the next three-years based on multiple-dry water years and normal water year. The driest three-year historic sequence is provided in Table 6-3. The water supplies for 2010 and 2015 are presented in Chapter 4. It is assumed that the multiple-dry year supplies will be the same as those for the normal years because the wholesale supply from SJWD and local groundwater will meet projected water demands under all anticipated hydrologic conditions.

In general, the District's supply is expected to be 100 percent reliable through 2035. This reliability is a result of: 1) highly reliable surface water supplies from the American River and 2) historically reliable groundwater supply from the Central Sacramento Basin (see Chapters 4 and 6 for details).

Table 8-2 summarizes the minimum volume of water available from each source during the next three years based on multiple-dry water years and normal water year.

Table 8-2: Three-Year Estimated Minimum Water Supply in ac-ft/yr				
Source	**2011**	**2012**	**2013**	**2010[1] Average Year**
Surface Water from SJWD	14,894	14,894	14,894	14,894
Groundwater, FOWD	8,388	8,388	8,388	8,388
Recycled water	0	0	0	0
Total	23,282	23,282	23,282	23,282

Note:
1. Based on Calendar Year.

8.3 Catastrophic Supply Interruption Plan

A water shortage emergency could be the result of a catastrophic event such as a drought, failure of transmission facilities, regional power outage, earthquake, flooding, supply contamination from chemical spills, or other adverse conditions. In 1999, the District prepared a Vulnerability Assessment of the District's water system. The three major hazards to the system are drought, groundwater contamination, and fire. Other hazards such as surface water contamination, power outages, flood events, earthquakes, and distribution failures are considered secondary hazards because the probability of occurrence is low or the consequences resulting from the event are not serious.

The Vulnerability Assessment provides recommendations to mitigate for the likely consequences to the hazards most critical to the operations of the District. Recommendations to minimize the consequences of hazards include drilling new wells, enhancing inter-tie connections with other districts, installing additional fire hydrants in the woodland areas of the American Parkway, installing new valves on transmission mains to isolate damage, and purchasing additional portable generators. The Vulnerability Assessment lists the potential actions to be taken by the District in the event of a catastrophic emergency.

Table 8-3 provides a summary of actions cross-referenced against specific catastrophes most critical to the operations of the District.

Table 8-3: Summary of Actions for Catastrophic Events	
Possible Catastrophe	**Summary of Actions**
Drought	• Replace groundwater wells with diminishing production capacity • Drill new wells • Implement groundwater protection program • Implement efficiency water use program
Groundwater Contamination	• Replace contaminated groundwater wells • Construct wellhead treatment system • Implement groundwater protection program • Open emergency inter-ties with neighboring water suppliers.
Fire	• Open emergency inter-ties with neighboring water suppliers. • Construct additional fire hydrants

8.4 Prohibitions, Penalties, and Consumption Reduction Methods

Table 8-4 summarizes the various prohibitions and the stages during which the prohibition becomes mandatory.

Table 8-4: Summary of Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Excessive runoff	1
Free-flowing hoses for all hoses	1
Uncorrected plumbing or irrigation leaks	1
Washing of streets, driveways, sidewalks, building	1
Full flow of landscape and pasture irrigation.	2
Serving water at restaurants only when requested by customers	3
Filling, refilling, or topping off of swimming pools, decorative ponds, lakes, fountains	4
Flushing of sewers or fire hydrants	5
New connection to the District's water distribution system	5

Note:
This table is based on the DWR Guidebook Table 36.

Table 8-5 summarizes the penalties and charges and the stage during which they take effect.

Table 8-5: Summary of Penalties and Charges for Excessive Use

Penalties or Charges	Stage When Penalty Takes Effect
Warning for excess use, initial two (2) violations	1
Formal violation notice for excess use, after three (3) violations	1
Charges for excess use and termination of water service, after four (4) violations	1

Note:
This table is based on the DWR Guidebook Table 38.

Based on the requirements of the Act, Table 8-6 summarizes the methods that can be used by the District in order to enforce a reduction in consumption, where necessary.

Table 8-6: Summary of Consumption Reduction Methods		
Consumption Reduction Method	**Stage When Method Takes Effect**	**Projected Reduction Percentage(2)**
Mandatory reduction of indoor water use	2, 3, 4, 5	5 - 50%
Reduce landscape and pasture irrigation. Customers with "smart" irrigation timers or controllers are asked to set the controllers to achieve 90 to 95% of the evapotranspiration (ET) rate.	2	5 - 10%
Reduce landscape and pasture irrigation. Customers with "smart" irrigation timers or controllers are asked to set the controllers to achieve 75 to 89% of the evapotranspiration (ET) rate.	3	11 - 25%
Reduce landscape and pasture irrigation. Customers with "smart" irrigation timers or controllers are asked to set the controllers to achieve 50 to 74% of the evapotranspiration (ET) rate.	4	26 - 50%
Landscape and pasture irrigation is prohibited	5	100%

Notes:
1. This table is based on the DWR Guidebook Table 37.
2. Projected reduction percentage is for indoor water use and landscape/pasture irrigation only.

8.5 Revenue Impacts of Reduced Sales

Section 10632(g) of the Act requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. The District is in the process of transitioning from a flat rate residential billing system to a commodity-based billing approach. This shift will cause the District rely significantly more on revenue associated with customer water use to ensure the District remains revenue neutral. Therefore, reductions in water sales are a significant concern going forward, and the District is in the process of implementing protocols to prevent deficit conditions.

The District maintains a cash reserve account to offset a temporary reduction in water sales in the event of a short-term catastrophic event or limited drought. While reduced demands would result in decreased operations costs (such as water purchases and pumping), a long term event would likely require budgetary adjustments to fund the District at needed levels. In the event that it becomes necessary for the District to utilize its reserves, the District may have to increase rates and all rate increases will require completion of a Proposition 218 public approval process.

8.6 Water-Use Monitoring Procedures

The Act asks for an analysis of mechanisms for determining actual reduction in water use when the Water Shortage Contingency Plan is in effect. Table 8-7 lists the possible mechanisms used by FOWD to monitor water use and the quality of data expected.

Table 8-7: Water-Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type and Quality of Data Expected
District-wide water usage figures are recorded weekly. Usage totals are formally reported to the General Manager and Board of Directors on a monthly basis	Weekly/monthly water usage data for a specific user depending on frequency of readings
District-wide usage figures are recorded weekly. Usage totals are formally reported to the General Manager weekly, whom will report any significant discrepancy in reduction goals to the Board of Directors so that appropriate corrective actions will take place. Usage reports will be formally presented to the General Manager and Board of Directors on a monthly basis.	Weekly/monthly water usage data for a specific user depending on frequency of readings
Production from all sources and system pressure will be continually monitored around the clock and reported to the supervisor in charge. Causes of concern will be reported to the General Manager with implementation of corrective actions. Reports will be provided to the General Manager.	Hourly/daily/monthly water supply facilities system pressure readings.

In addition to the specific actions that the District can undertake to verify level of conservation, the District can monitor long-term water use through regular bi-monthly meter readings, which give the District the ability to flag exceptionally high usage for verification of water loss or abuse.

Chapter 9: References

Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan (DWR Guidebook) issued March 2011.

California Department of Water Resources (DWR). 2011. *Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan (DWR Guidebook)*. March 2011.

California Department of Water Resources (DWR). Water Use and Efficiency Branch. Division of Statewide Integrated Water Management. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. February 2011.

California Department of Water Resources (DWR). 2010. *20x2020 Water Conservation Plan*. February 2010.

California Urban Water Management Council (Council). 2010. *Memorandum of Understanding Regarding Urban Water Conservation in California*. As Amended June 09.

SACOG Projections. 2004. *Projections Update Metropolitan Transportation Plan 2027*. <http://www.sacog.org/demographics/projections/Projections%20Doc.pdf>

Sacramento County Municipal Services Agency. *Sacramento County Housing Element 2008 - 2013*. Sacramento: 2008.

2005 Urban Water Management Plan Fair Oaks Water District. Psomas. December 2005.

2010 Urban Water Management Plan, San Juan Water District. June 2011.

Western Regional Climate Center (WRCC). 2008. *Period of Record Monthly Climate Summary*. <http://www.wrcc.dri.edu/summary/lcdus08.html>.

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Appendix A

Urban Water Management Planning Act

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING

All California Codes have been updated to include the 2010 Statutes.

CHAPTER 1.	GENERAL DECLARATION AND POLICY	10610-10610.4
CHAPTER 2.	DEFINITIONS	10611-10617
CHAPTER 3.	URBAN WATER MANAGEMENT PLANS	
Article 1.	General Provisions	10620-10621
Article 2.	Contents of Plans	10630-10634
Article 2.5.	Water Service Reliability	10635
Article 3.	Adoption and Implementation of Plans	10640-10645
CHAPTER 4.	MISCELLANEOUS PROVISIONS	10650-10656

WATER CODE
SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact

on water management strategies and supply reliability.
(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:
(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

WATER CODE
SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city

and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

WATER CODE
SECTION 10620-10621

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 areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

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

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

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

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, at least 60 days prior to the public hearing on the plan required by Section 10642, 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).

WATER CODE
SECTION 10630-10634

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.

10631. A plan shall be adopted in accordance with this chapter that 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.

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

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. 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.

(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.

(c) (1) 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:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) 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.

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

(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.

(I) Agricultural.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

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

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.
(2) A schedule of implementation for all water demand management measures proposed or described in the plan.
(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
(2) Include a cost-benefit analysis, identifying total benefits and total costs.
(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
(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.
(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California,"

dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(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).

10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall

determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of

the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) 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:

(1) 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 that are applicable to each stage.

(2) 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) 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.

(4) 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.

(5) 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.

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

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), 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.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

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:

(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, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(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.

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.

WATER CODE SECTION 10635

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.

WATER CODE
SECTION 10640-10645

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

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

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

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

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

10644. (a) An urban water supplier shall 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 exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to 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.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section

10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

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 10650-10656

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.

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.

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.

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.

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.

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.

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.

Appendix B

UWMP Adoption Resolution, Public Hearing Notices, and Notifications

RESOLUTION NO. 11-05

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE FAIR OAKS WATER DISTRICT

A RESOLUTION ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN AND SETTING URBAN WATER USE TARGETS

WHEREAS, the Fair Oaks Water District Urban Water Management Plan is prepared and submitted to fulfill the requirements of the California Urban Water Management Planning Act of 1983, Assembly Bill No. 797, Water Code Section 10610 et seq.; and

WHEREAS, the District has prepared and made available for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was conducted by the Board of Directors on September 12, 2011; and

WHEREAS, Fair Oaks Water District considered the economic impacts of the Fair Oaks Water District implementation plan for complying with SBX7-7 and adopted Method 1 under Water Code Section 10608.20(b) for determining its urban water use targets; and

WHEREAS, the Board of Directors intends that the Plan shall serve as a guideline to assist the District in its efforts to encourage conservation and efficient use of water.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Fair Oaks Water District as follows:

1. That 2010 Urban Water Management Plan is hereby adopted; and the District Secretary is hereby authorized and directed to file the plan with the California Department of Water Resources; and

2. The District General Manager is hereby directed to implement the program as set forth in the 2010 Urban Water Management Plan, subject to review and express authorization of the Board of Directors for actions requiring approval of the Board of Directors.

I certify that the foregoing Resolution was adopted by the Board of Directors of the Fair Oaks Water District at a Regular meeting held on the 12th day of September 2011, by the following vote:

AYES: Directors Gilliam, Gossett, Healey, Marx, and Sarkovich

NOES:

ABSTAIN:

ABSENT:

Randy Marx, President
Board of Directors

ATTEST:

Tom R. Gray, General Manager / Secretary

FAIR OAKS
WATER DISTRICT

18 August 2011

Ms. Colleen McDuffee
Planning Manager
City of Citrus Heights
6237 Fountain Square Drive
Citrus Heights, CA 95621

Subject: Notice of Public Hearing
Fair Oaks Water District 2010 Urban Water Management Plan

Dear: Ms. McDuffe

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

The draft UWMP will be available by September 5, 2011 for public review and can be reviewed at www.fowd.com or at the District's office during normal business hours Monday to Friday, 8 AM to 4:30 PM:

Fair Oaks Water District Office
10326 Fair Oaks Blvd
Fair Oaks, CA 95628

Should you have any questions or concerns, please feel free to contact me at (916) 844-3513 or mnisenboym@fowd.com.

Very truly yours,

Fair Oaks Water District

Michael Nisenboym
Operations Manager

cc: Sean Maguire, Kennedy/Jenks

10326 Fair Oaks Boulevard
P.O. Box 640
Fair Oaks, CA 95628-0640
Tel: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com

FAIR OAKS
WATER DISTRICT

18 August 2011

Mr. Kyle Ericson
Senior Engineer
Department of Utilities
City of Folsom
50 Natoma Street
Folsom, CA 95630

Subject: Notice of Public Hearing
Fair Oaks Water District 2010 Urban Water Management Plan

Dear: Mr. Ericson

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

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Fair Oaks Water District Office
10326 Fair Oaks Blvd
Fair Oaks, CA 95628

Should you have any questions or concerns, please feel free to contact me at (916) 844-3513 or mnisenboym@fowd.com.

Very truly yours,

Fair Oaks Water District

Michael Nisenboym
Operations Manager

cc: Sean Maguire, Kennedy/Jenks

10326 Fair Oaks Boulevard
P.O. Box 640
Fair Oaks, CA 95628-0640
Tel: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com

FAIR OAKS
WATER DISTRICT

18 August 2011

Mr. Paul Junker
Planning Director
City of Rancho Cordova
2729 Prospect Park Drive
Rancho Cordova, CA 95670

Subject: Notice of Public Hearing
Fair Oaks Water District 2010 Urban Water Management Plan

Dear: Mr. Junker

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

The draft UWMP will be available by September 5, 2011 for public review and can be reviewed at www.fowd.com or at the District's office during normal business hours Monday to Friday, 8 AM to 4:30 PM:

Fair Oaks Water District Office
10326 Fair Oaks Blvd
Fair Oaks, CA 95628

Should you have any questions or concerns, please feel free to contact me at (916) 844-3513 or mnisenboym@fowd.com.

Very truly yours,

Fair Oaks Water District

Michael Nisenboym
Operations Manager

cc: Sean Maguire, Kennedy/Jenks

10326 Fair Oaks Boulevard
P.O. Box 640
Fair Oaks, CA 95628-0640
Tel: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com

FAIR OAKS
WATER DISTRICT

18 August 2011

Mr. Robert Sherry
Director of Planning and Community Development
County of Sacramento
827 7th Street
Sacramento, CA 95814

Subject: Notice of Public Hearing
Fair Oaks Water District 2010 Urban Water Management Plan

Dear: Mr. Sherry

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

The draft UWMP will be available by September 5, 2011 for public review and can be reviewed at www.fowd.com or at the District's office during normal business hours Monday to Friday, 8 AM to 4:30 PM:

Fair Oaks Water District Office
10326 Fair Oaks Blvd
Fair Oaks, CA 95628

Should you have any questions or concerns, please feel free to contact me at (916) 844-3513 or mnisenboym@fowd.com.

Very truly yours,

Fair Oaks Water District

Michael Nisenboym
Operations Manager

cc: Sean Maguire, Kennedy/Jenks

10326 Fair Oaks Boulevard
P.O. Box 640
Fair Oaks, CA 95628-0604
Tel: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com

Sherly Rosilela

From: Michael Nisenboym [mnisenboym@fowd.com]
Sent: Monday, August 22, 2011 10:39 AM
To: Sherly Rosilela
Subject: FW: Sac Bee Legal proof

Hi Sherly, here is a copy of a legal notice in Sacramento Bee. I will get a copy of paper as well when they publish it.
Thanks

Michael Nisenboym, P.E.,
Operations Manager

FAIR OAKS WATER DISTRICT
10326 Fair Oaks Blvd.
Fair Oaks CA 95628
Ph. 916 844 3513
FAX 916 967 0153

From: Sandy Doyle
Sent: Friday, August 19, 2011 12:46 PM
To: Michael Nisenboym
Subject: FW: Sac Bee Legal proof

Hi Michael,
Here is the legal proof. Also the cost to run for 2 days. Let me know if this is ok and I will let Sierra know.

Sandy A. Doyle
Community Relations / Executive Assistant
10326 Fair Oaks Blvd.
P.O. Box 640
Fair Oaks, CA 95628-0640
Direct: (916) 844-3500
Office: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com
sdoyle@fowd.com

From: Smith, Kerri - Sacramento [mailto:kesmith@sacbee.com]
Sent: Friday, August 19, 2011 8:08 AM
To: Sandy Doyle
Subject: Sac Bee Legal proof

Good morning Sandy
Here is a proof for you. The cost to run 2 days is $495.16. Please let me know if

this is OK to run. Thanks

NO 471 PUBLIC NOTICE

NOTICE OF PUBLIC HEARING

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

The draft UWMP will be available by September 5, 2011 for public review and can be reviewed at www.fowd.com or at the District's office during normal business hours Monday to Friday, 8 AM to 4:30 PM:

Fair Oaks Water District Office

10326 Fair Oaks Blvd

Fair Oaks, CA 95628

Sierra Smith
Legal Advertising Account Manager
The Sacramento Bee Advertising Division
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WINE COLLECTION, LARGE. Extensive wine collection (approx. 280 btls.) with climate-controlled cabinet. Pix and partial list available. $10,000 (530) 329-5013

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Top $$$ Paid- Scrap iron, tractors, cars, trucks, steel bldgs some demolition commercial/resid/farm clean up. Fully ins. 530-682-9866

Miscellaneous Wanted 3660

BUYING PRE-1920s old postcards & antique photo albums. (916) 988-1935

CASH Paid (Anything old I'm interested) antique furn, pict, jwlry, art, toys, pottery, dolls, tools, free pu 530-401-3311

HELPLESS ANIMALS need your donations! SPCA THRIFT SHOP, the real non-profit! 916-442-8118 • 1517 E St

WANTED- Cab Over Camper for small truck 6 or 7 ft. Must have fridge. Call 530-274-0565

Musical Instruments & Services 3665

DRUMS Premier 5pc, Exc cond w/covers, $900ofr 916-845-7610/429-9925

● GUITARS WANTED! ●
Older Fender, Gibson, Martin, Mandolin, tube amp Pay to $2K 916-966-1900

PIANO STORY & CLARK upright, beautiful condition. www.scpiano.webs.com $1,111 obo (916) 374-9360

Restaurant, Store, Bar Equip. 3678

Hood Systems•Stainless Steel Design fab/install. 920.3733 Carson Mech.

★ WE BUY & SELL! ★
Used Restaurant/Bar Equip 446-9600

Sporting & Camping Equipment 3680

GOLF CART good cond. $1100 obo 916-845-7610/429-9925

The Best Time to Call

The Sacramento Bee Classified Department is early in the day, and early in the week. The closer to deadline, especially

Tickets - Entertainment 3695

MT VERNON WINERY CONCERT SERIES - AUBURN

Sat, Aug 20th 7pm to 10pm
GARY CAMPBELL & THE STARDUST COWBOYS
Cowboy Music & Wine Under the Stars!
Entry Fee: $15/person
BBQ Available $10/person
No Food or Drink to Be Brought in by Patrons!
Doors Open at 6:30 p.m.
R.S.V.P. Limited Seating!

Sat, Aug 27th 7pm to 10pm
JERRY WOODS & THE TORPEDOS UNPLUGGED
Classic Rock Amongst the Vines!
Entry Fee: $15/person
No Food or Drink to Be Brought in by Patrons!
Doors Open at 6:30 p.m.
R.S.V.P. Limited Seating!

RSVP via email:
wineclubmtvernonwinery@gmail.com ★ (530)823-1111
www.mtvernonwinery.com

Farm

Farm Equipment 4025

New KUBOTA
B2320DT Tractor
23 HP, 4WD, PS, $10850 0% flancing available or cash discount.
DOLK TRACTOR 707-374-6438

Headlines are Important

There are 3 types: Information headlines state a fact about the item, such as "Maytag Washer". Clever headlines use humor or rhyme to grab attention, e.g. "Wife says it has to go". A benefit headline describes a benefit of owning the item, e.g. "Ease your troubles in a backyard spa".

Notices

Legal Notices 2005

TO PUBLISH A LEGAL NOTICE IN THE SACRAMENTO BEE,
Call 916-321-1371,
Fax 916-321-1110 or email
legaladvertising@sacbee.com

NO 471 PUBLIC NOTICE

NOTICE OF PUBLIC HEARING

In conformance with the California Urban Water Management Planning Act, Fair Oaks Water District (District) is hosting a public hearing on Monday, September 12, 2011, beginning 6:30 PM, during the regularly scheduled District's Board Meeting at the District's office (address below). The purpose of the hearing is to allow community input and adopt the District's 2010 Urban Water Management Plan (UWMP).

The draft UWMP will be available by September 5, 2011 for public review and can be reviewed at www.fowd.com or at the District's office during normal business hours Monday to Friday, 8 AM to 4:30 PM:

Fair Oaks Water District Office

10326 Fair Oaks Blvd

Fair Oaks, CA 95628

CLASSIFIED MARKETPLACE

To place an ad: sacbee.com/placeanad • 916.321.1234 • 1.800.876.870

Stuff

Antiques, Collector, Art Services 3505

ANTIQUE PACE SLOT MACHINE 1930 Exc cond $800. 916-735-8853

CHINESE IVORY CHESS SET 1950S Large, complete and near mint elephant ivory chess set w/box which opens to 2 foot diameter board. Very unusual style. Kings stand 6 inches tall. No damage except all four knights are missing spear tips. Flags are present. Looks to have been hardly used. A must see item. Priced well below retail. $1,950 (916) 541-2623

GORGEOUS! Chest of drwrs, Henredon w/match. mirror $400. SLIGH Vanity w/match. chest of drwrs & stool $800. Duncan Phyf dining tble w/5 match. chairs & credenza $400. 7ft tall glass display cabinet $300 916-967-7558

Appliances 3510

GENERATOR 7000W Brand New Never used Cummins Onan QG 7000 Commercial Gas Generator w/ Exhaust/Tailpipe Kit, Manual & Warranty. Model - 7HGJAE-2132: Fuel - Gasoline See my Sac Bee online add for more details & pics. $4400 Call 916-759-6281

Clothing and Jewelry 3535

ABOUT WATCHES
Buying men's wrist, pocket, wind up, Rolex, TOP $$$ PAID
CALL ME FIRST! 916-708-7804

HIGHEST Prices Obtained For Fine Jewelry thru Our Consignment/Estate Dpt. 916-685-6530 Dalin Jewelers

Firewood 3543

CASTILLOS FIREWOOD seas. split almond, free del. No tax. (209) 394-8787

SPLIT OAK, Premium $285/Cord $150-1/2Cord 800-266-4944 Free Delivery

Firearms & Accessories 3545

- **BROWNING** BPS 12ga pump. $245
- Winchester Youth model single 20ga..... $145
- Remington Mod 1900 SXS 12ga grade KE, 110 yrs old. $345

CALL BOB (530) 620-1201

GARAGE SALES: SACRAMENTO CITY

GARAGE SALES: SACRAMENTO CO. AND OUTLYING AREAS

Home Furnishings 3645

COUCH- Hide-a-bed, Dark tan, exc. cond bed never used. $195 916-344-8978

TV Cabinet, Oak w/doors. 56h,33w, $50 916-772-6039

Miscellaneous For Sale 3650

Apple iPhone 4 32GB
Apple Ipad 2 64GB(WI-FI + 3G)
For Sale: This phone is unlocked and can be used with any SIM card sms: **(310)982-7551** or email **sales@nextgenerationphones.com** for more information

HIDE-A-BED. Lawn Mower, used 5x. Downsizing more stuff! 916-645-8469

MOVING SALE! Sofa, Luv seat- $475, Oak Dining Tbl w/ 4chrs- $375, China Hutch- $250, Curio Cab- $175, Floor lamp- $15, Stereo- $35, Recliner- $125. All furn near new! 916-339-1039

WINE COLLECTION. LARGE Extensive wine collection (approx. 230 btls.) with climate-controlled cabinet. Pix and list available. $6000

Call ray 530-329-5013 $6,000 raybuck@wildblue.net

★SCRAP METAL WANTED★
Top $$$ Paid- Scrap iron, tractors, cars, trucks,steel bldgs some demolition commercial/resid/farm clean up. Fully ins. 530-682-9866

Miscellaneous Wanted 3660

ANTIQUES, Korean, Chinese, Japanese wanted. Paying good prices. *usavitamin@hotmail.com* 808-754-7111

BUYING PRE-1920s old postcards & antique photo albums. (916) 988-1935

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Musical Instruments & Services 3665

● GUITARS WANTED! ●
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Sacramento Bee Classified 321-1234

Musical Instruments & Services 3665

DRUMS Premier 5pc, Exc cond w/covers. $600ofr 916-845-7610/429-9925

HAMMOND B-3 organ with Leslie 122. Serious only. $4500obo 916-969-0369

PIANO for sale Steinway console piano, black, very good condition, beautiful tone. $3,450 (916) 745-1503 janzen@comcast.net

PIANO KNABE 5'8" Grand. Circa 1920. Must sell $1300. 916-858-0383

Office and Business Equipment 3667

TOSHIBA-4560, Staple/sort/duplex single copy Zoom $395 530-672-9252

Restaurant, Store, Bar Equip. 3678

Hood Systems•Stainless Steel Design fab/install. 920.3733 Carson Mech.

★ WE BUY & SELL! ★
Used Restaurant/Bar Equip 446-9600

Sporting & Camping Equipment 3680

PITCHING MACHINES, Jugs M101- $1000 & M1000 Curve ball- $1200 Good Cond. 530-672-9252

TVs, Stereos, VCRs, DVDs, etc 3710

SPEAKER RECONING
nealspeakerrepair.com 916-363-6524

TV Brand New Sony Plasma 60" still in box, w/wall mount. $250. 916-625-1372 ; 561-876-7199

Farm

Horses, Trailers and Supplies 4010

LIVESTOCK Trailer, Wht, 13ft, Int. Divides, Saddle rack, matts, Very clean, Barn stored. $2,950 209-334-4866

Farm Equipment 4025

Notices

Legal Notices 2001

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Fair Oaks Water District Office

10326 Fair Oaks Blvd

Fair Oaks, CA 95628

Appendix C

DWR Review Checklist

Table I-2 Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
PLAN PREPARATION				
4	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.	10620(d)(2)		1.4
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		1.5
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		1.5
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		1.5
55	Provide supporting documentation that the water supplier has encouraged 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.	10642		1.5
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		1.4
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		1.5
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		1.7

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to 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. This also includes amendments or changes.	10644(a)		Appendix K
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Appendix K
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		2.4
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in “Baseline Daily Per Capita Water Use.” See Section M.	2.3.1
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	2.3.1
12	Describe other demographic factors affecting the supplier’s water management planning.	10631(a)		2.2
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		3.2.1

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (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, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	3.1
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	3.7
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		3.8
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	4.1

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate “not applicable” in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Yes
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		4.3.3 & Appendix G
16	Describe the groundwater basin.	10631(b)(2)		4.3.3
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		4.3.2
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		N/A
19	For groundwater basins that are not adjudicated, provide information as to whether DWR 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. If the basin is adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		N/A
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		4.3.1
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	4.3.1
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		4.4

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		4.5
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		4.7
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		4.8
45	Describe 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.	10633(a)		4.8.2
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		4.8.2
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		4.8
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		4.8.3
49	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.	10633(e)		4.8.3
50	Describe the 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.	10633(f)		4.8.3

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
51	Provide 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.	10633(g)		4.8.4
	WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b]			
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		1.9
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		6.1
23	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.	10631(c)(2)		6.1.1
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		8.1
36	Provide 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.	10632(b)		8.2
37	Identify 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.	10632(c)		8.3
38	Identify 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.	10632(d)		8.4
39	Specify 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.	10632(e)		8.4

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		8.4
41	Provide 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.	10632(g)		8.5
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		8.4 & Appendix E
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		8.6
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	5
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing 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. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		6.2 – 6.4
	DEMAND MANAGEMENT MEASURES			
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	7.1
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		7.1
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		7.2

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP Chapter and Section
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	7.2 -7.4
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	N/A

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

Appendix D

Council Annual Reports for Demand Management Measures

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: Fair Oaks Water District **District Name:** Fair Oaks Water District **CUWCC Unit #:** 120
Retail

Primary Contact Shawn Huckaby **Telephone** 916-967-5723 **Email:** shuckaby@fowd.com

Compliance Option Chosen By Reporting Agency:
(Traditional, Flex Track or GPCD)
GPCD if used:

GPCD in 2010	**291**
GPCD Target for 2018	270

Year	Report	Target		Highest Acceptable Bound	
		% Base	GPCD	% Base	GPCD
2010	1	96.4%	318	100%	330
2012	2	92.8%	306	96%	318
2014	3	89.2%	294	93%	306
2016	4	85.6%	282	89%	294
2018	5	82.0%	270	82%	270

Not on Track if 2010 GPCD is > than target

GPCD in 2010	291
Highest Acceptable GPCD for 2010	330

On Track

Agency: Fair Oaks Water District **District Name:** Fair Oaks Water District **CUWCC Unit #:** 120
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Foundational BMPs

BMP 1.1 Operational Practices

Conservation Coordinator provided with necessary resources to implement BMPs?

		2009	2010
1.Conservation Coordinator provided with necessary resources to implement BMPs?	Name	Shawn Huckaby	Shawn Huckaby
	Title	Operations Superintendent	Operations Superintendent
	Email		shuckaby@fowd.
		On Track	**On Track**

2. Water waste prevention documentation

	2009	2010
Descriptive File	Fair Oaks Water District_Fair Oaks Water District_120_ Operations Practices_BMP1.1_ Water Waste Prevention	
Descriptive File 2010		Fair Oaks Water District_Fair Oaks Water District_120_ Operations Practices_BMP1.1_ Water Waste Prevention
URL		
URL 2010		
Describe Ordinance Terms	Fair Oaks Water District has a Board approved conservation policy for water waste prevention that has mandatory requirements Stages 1 - 5 with enforcement. Policy sent to natalie@CUWCC.org	
Describe Ordinance Terms 2010		Fair Oaks Water District has a Board approved conservation policy for water waste prevention that has mandatory requirements Stages 1 - 5 with enforcement. Policy sent to natalie@CUWCC.org
	On Track	**On Track**

On Track if any one of the 6 ordinance actions done, plus documentation or links provided

Agency: Fair Oaks Water District **District Name:** Fair Oaks Water District **CUWCC Unit #:** 120
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 1.2 Water Loss Control

	2009		
Complete a prescreening Audit	yes	On Track	On Track if Yes
Metered Sales	1,832		
Verifiable Other Uses	1		
Total Supply	12,181		
(Metered Sales + System uses)/ Total Supply >0.89	0.15	Exempt	On Track if =>.89, Not on Track if No
If ratio is less than 0.9, complete a full scale Audit in 2009?	No		On Track if Yes
Verify Data with Records on File?	Yes	On Track	On Track if Yes
Operate a system Leak Detection Program?	Yes	On Track	On Track if Yes

Comment: Fair Oaks Water District (District) is in the process of installing water meters on all service connections. Metered sales information is not available in 2009 for water service connections (with no meter) and billed flat rate. The District will implement metered billing starting January 2012. Confirm M36 Water Audit can be completed even though the District was not yet fully metered.

		2010		
Compile Standard Water Audit using AWWA Software?		Yes	On Track	On Track if Yes, Not on Track if No
AWWA file provided to CUWCC?	Fair Oaks Water District _Fair Oaks Water District_120_Water Loss Control_BMP1.2 2010_AWWA Water Audit		On Track	On Track if Yes, Not on Track if No
AWWA Water Audit Validity Score?		76		Info only until 2012
Completed Training in AWWA Audit Method?		No		
Completed Training in Component Analysis Process?		No		Info only until 2012
Complete Component Analysis?		No		Info only until 2012
Repaired all leaks and breaks to the extent cost effective?		Yes	On Track	On Track if Yes, Not on Track if No
Locate and repair unreported leaks to the extent cost effective.		Yes	On Track	On Track if Yes, Not on Track if No
Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.				Info only until 2012
Provided 7 types of Water Loss Control Info				Info only until 2012

Leaks Repaired	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost of Interventions	Water Saved
20	$ 500	$ -	0	Yes	$ 30,000	3.6

Comment by FOWD: The District replaced 1200 feet of six (6) inch steel water main in 2010. The District replaced water service lateral for all meter retrofit installations (1116 in 2010) for meter implementation project.

Agency: Fair Oaks Water District | District Name: Fair Oaks Water District | CUWCC Unit #: 120

Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

If signed MOU prior to 31 Dec 1997, On Track if all connections metered; If signed after 31 Dec 1997, complete meter installations by 1 July 2012 or within 6 yrs of signing and 20% biannual reduction of unmetered connections.

	2009		2010		
Exemption or 'At least as Effective As' accepted by CUWCC					
Numbered Unmetered Accounts	Yes	**Exempt**	Yes	**Exempt**	On Track if no unmetered accounts
Metered Accounts billed by volume of use	No	**Exempt**	No	**Exempt**	Volumetric billing required for all connections on same schedule as metering
Number of CII accounts with Mixed Use meters	0		0		Info only
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	No		No		Info only until 2012
Feasibility Study provided to CUWCC?	No		No		Info only until 2012
Completed a written plan, policy or program to test, repair and replace meters	No		No		Info only until 2012

Comment by FOWD: Fair Oaks Water District (District) is in the process of installing water meters on all service connections. District will implement metered billing starting Jan. 2012.

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: **Fair Oaks Water District** **District Name:** **Fair Oaks Water District** **CUWCC Unit #:** **120**
Retail
Coverage Report Date: September 26, 2011

Primary Contact Shawn Huckaby **Email:** shuckaby@fowd.com

1.4 Retail Conservation Pricing

Date 2009 data received August 3, 2011
Date 2010 data received

On Track if: Increasing Block, Uniform, Allocation, Standby Service; Not on Track if otherwise

Metered Water Rate Structure

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Non-Volumetric Flat R	No	Single Family	No- Volumetric	No
Single-Family	Uniform	Yes	Single family	Uniform	Yes
Commercial	Uniform	Yes	Commercial	Uniform	Yes
Commercial	Non-Volumetric Flat R	No	Commercial	Non Volumetric	No
	On Track			**On Track**	

Year Volumetric Rates began for Agencies with some Unmetered Accounts

Info only

Agencies with Partially Metered Service Areas: If signed MOU prior to 31 Dec. 1997, implementation starts no later than 1July 2010. If signed MOU after 31 Dec. 1997, implementation starts no later than 1July 2013, or within seven years of signing the MOU,

Agency: Fair Oaks Water District
Retail

District Name: Fair Oaks Water District

CUWCC Unit #: 120

Coverage Report Date: September 26, 2011

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Adequacy of Volumetric Rates) for Agencies with No Unmetered Accounts

Customer Class	2009 Rate Type	2009 Volumetric Revenues $1000s	2010 Rate Type	2010 Volumetric Revenues $1000s
Single-Family	Non-Volumetric Flat	$ -	No- Volumetric	
Single-Family	Uniform	$ 11	Uniform	$ 12
Commercial	Uniform	$ 242	Uniform	$ 222
Commercial	Non-Volumetric Flat R	$ -	Non Volumetric	
Comment by FOWD: Fair Oaks Water District billing system does not have revenue information for Multi-Family, Industrial, Institutional and Dedicated Irrigation Customer classes. The revenues for these Customer classes are included in Commercial Revenues reported .				
Total Revenue Commodity Charges (V):		$ 253		$ 233
Total Revenue Fixed Charges (M):		$ 7,626		$ 7,606
Calculate: V / (V + M):		3%		3%
		Info Only untill 2011		Info Only untill 2011

Volumetric meter rates % effective 2011

Agency Choices for rates:

A) Agencies signing MOU prior to 13 June2007, implementation starts 1 July2007: On Track if (V / (V + M) ≥ 70% x .8 = **56% for 2009** and 70%x0.90 = **63% for 2010**; Not on track if (V / (V + M)) < 70%;

B) Use Canadian model. Agencies signing MOU after 13June2007, implementation starts July 1 of year following signing.

Canadian Water & Wastewater Rate Design Model Used and Provided to CUWCC	**No**	**No**
	Info Only untill 2011	Info Only untill 2011
If Canadian Model is used, was 1 year or 3 year period applied?		

Wastewater Rates

	2009		2010
Does Agency Provide Sewer Service?	**No**	If 'No', then wastewater rate info not required.	**NO**

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?

On Track **On Track**

On Track if: 'Increasing Block', 'Uniform', 'based on long term marginal cost' or 'next unit of capacity'

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 2. EDUCATION PROGRAMS

BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement Public Outrach Programs for this unility's benefit?	No		Yes/No
Names of Wholesale Agencies			
1) Contacts with the public (minimum = 4 times per year)	4	6	
2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly).	14	9	
3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly).	Yes www.rwah2o.org and in 2010 www.BeWaterSmart.info	Yes	All 6 action types implemented and reported to CUWCC to be 'On Track')
4) Description of materials used to meet minimum requirement.	Articles or stories resulting from outreach News releases Newspaper contacts Written editorials	Articles or stories resulting from outreach News releases Radio contacts	
5) Annual budget for public outreach program.	$ 82,154	$ 82,154	
6) Description of all other outreach programs	1. 2009 and 2010- The rebate section of the www.rwah2o.org includes information about toilet, high efficiency clothes washer, smart irrigation controller, cooling tower, commercial rinse and spray valve, pressurized brooms and ice machine retrofit rebates. This section is updated annually with program date changes and at a minimum 4 times per year as rebate amounts change, agency participation changes, new programs are available, and rebate applications are updated. 2. 2009 and 2010-The Green Gardener Training Program information brochure and	The District implements an ongoing public information program promoting water conservation and conservation related benefits. The District is a member of the Regional Water Authority (RWA);participates in the Water Efficiency Program (WEP)and Advisory Committee (PAC) both affiliated with the RWA. At this time full participation in this program is based upon an annual per connection contribution by Fair Oaks Water District to the RWA WEP for the combined Public Information and School Education program.	
	On Track	**On Track**	

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

2.2 School Education Programs Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement School Education Programs for this unility's benefit?	No	No	
Name of Wholesale Supplier?			
1) Curriculum materials developed and/or provided by agency	• Student supplements, written by an award-winning environmental educator and edited by water agency personnel. • Teaching materials, online Be Water Smart teacher guides and activities • California Waterways map • Student contests for K-4th grades and 5th-8th grades • Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program	• Student supplements, written by an award-winning environmental educator and edited by water agency personnel. • Teaching materials, online Be Water Smart teacher guides and activities • California Waterways map • Student contests for K-4th grades and 5th-8th grades • Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program	Yes/ No
2) Materials meet state education framework requirements and are grade-level appropriate?	Yes	Yes	All 5 actions types implemented and reported to CUWCC to be
3) Materials Distributed to K-6?	Yes	Yes	
Describe K-6 Materials	Student supplements, written by an award-winning environmental educator and edited by water agency personnel. • Teaching materials, online Be Water Smart teacher guides and activities • California Waterways map • K-4 will receive a class set of "Water Conservation and You booklets" • Student contests for K-4th grades and 5th-8th grades • Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program	• Student supplements, written by an award-winning environmental educator and edited by water agency personnel. • Teaching materials, online Be Water Smart teacher guides and activities • California Waterways map • K-4 will receive a class set of "Water Conservation and You booklets" • Student contests for K-4th grades and 5th-8th grades • Subscription to Sacramento Bee newspaper for 4 consecutive weeks for the program	Describe materials to meet minimum requirements
Materials distributed to 7-12 students?	No	No	Info Only
4) Annual budget for school education program.	$ 21,500	$ 21,500	
5) Description of all other water supplier education programs	• Be Water Smart contest for grades K-4 students. Students are asked to review water saving tips with their parents, choose three that they will do at home. Forms are signed by both student and parent, and then returned to the teacher to be entered into a drawing to win a classroom visit with Mr. Leaky, their local water provider and t-shirts for the whole class. • Be Water Smart Challenge contest for grades 5-8 students. Students are asked review three water education related websites to answer 20 questions and entered into a drawing to win a $100 savings bond.	• Be Water Smart contest for grades K-4 students. Students are asked to review water saving tips with their parents, choose three that they will do at home. Forms are signed by both student and parent, and then returned to the teacher to be entered into a drawing to win a classroom visit with Mr. Leaky, their local water provider and t-shirts for the whole class. • Be Water Smart Challenge contest for grades 5-8 students. Students are asked review three water education related websites to answer 20 questions and entered into a drawing to win a $100 savings bond.	
	On Track	**On Track**	

Appendix E

Resolution No. 0109 – Water Shortage Contingency Plan

RESOLUTION NO. 0109

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE FAIR OAKS WATER DISTRICT

A RESOLUTION AMENDING RESOLUTION NO. 9609 WATER CONSERVATION REQUIREMENTS AND ENFORCEMENT MEASURES

WHEREAS, the Board of Directors of the Fair Oaks Water District (the "Board" and the "District", respectively) does hereby establishing Water Conservation Requirements and Enforcement Measures for FAIR OAKS WATER DISTRICT.

WHEREAS, water is a valuable resource which should not be wasted; and

WHEREAS, water availability can be adversely affected by weather conditions, environmental commitments and depleting ground water basin, and population growth; and

WHEREAS, the FAIR OAKS WATER DISTRICT is resolved to provide its customers with an adequate water supply at a reasonable price; and

WHEREAS, the Board of Directors of the FAIR OAKS WATER DISTRICT is committed to actively encourage District water users to conserve water.

NOW, THEREFORE BE IT RESOLVED, that in compliance with California Water Codes 375, 376 and 377, the following conservation program is hereby adopted by the Board of Directors of the Fair Oaks Water District and hereby finds, determines, declares and resolves as follows:

DETERMINATION AND DECLARATION OF WATER SUPPLY STAGES:

1. The Board of Directors of the District shall examine all available water supply and delivery data and the water deficiency guidelines below to determine the appropriate water supply stage. Upon notice by the District that one of the STAGED conditions exists within the District, the water conservation measures set for that specific STAGE shall apply to all District water customers until a different condition is declared:

STAGE 1 - NORMAL WATER SUPPLY: The District's water supply or distribution system is able to meet all the normal water demands of its customers in the immediate future.

STAGE 2 - WATER ALERT: There is a probability that the District's water supply or distribution system is not able to meet all the water demands of its customers.

STAGE 3 - WATER WARNING: The District's water supply or distribution system is not able to meet all the water demands of its customers.

STAGE 4 - WATER CRISIS: The District's water supply or distribution system is not able to meet all the water demands of its customers under STAGE 3 - WATER WARNING requirements.

STAGE 5 - WATER EMERGENCY: The District is experiencing a major failure of water supply, storage, or distribution system facilities.

2. Mandatory requirements associated with each of the stages are listed as follows:

STAGE 1 - NORMAL WATER SUPPLY

1. Water will be used in a beneficial manner; all non-beneficial and wasteful use of water is prohibited.

2. Water use shall be confined to the customer's property and shall not be allowed to run-off to adjoining property, roadside ditch, or gutter.

3. Outside-automated irrigating systems shall not be permitted to operate between 12 noon and 6:00 PM daily.

4. Outside manual irrigation shall not be permitted to operate between 12 noon and 6:00 PM daily.

5. Automatic shut-off device on garden hoses or filling apparatus' shall be used. Free-flowing hoses for water application (i.e. vehicle and equipment washing, ponds, irrigating, evaporative coolers, and livestock watering troughs) is prohibited.

6. Leaking customer pipes, pools, spas, fountains, ponds or faulty irrigation systems shall be addressed promptly. Upon notification by the District, leaks shall be repaired within five (5) days (or less or as conditions warrant) or service shall be terminated immediately and subject to reconnection charges. The termination procedure is independent of ENFORCEMENT section herein.

7. Pools, spas, fountains and ponds shall be equipped with recirculating pumps and shall be constructed to be leak-proof. Pools and spas shall be filtered and treated to minimize draining and refilling operations. Pool draining and refilling shall be performed only for health or maintenance considerations as recommended by a recognized pool professional. Said professional shall attest in letter form, and the District must concur with the reason(s) for pool draining, before the pool is drained.

8. Washing or hydraulic sweeping of streets, parking lots, driveways, sidewalks, patios, tennis courts or buildings is allowed only for health or sanitary considerations.

STAGE 2 - WATER ALERT

Upon implementation by the District of STAGE 2, the following mandatory requirements shall apply to all customers, in addition to the mandatory requirements of STAGE 1, except as superceded herein:

1. Outside automated irrigating systems shall not operate between 10:00 AM and 12 midnight daily, in addition to the 12 noon to 6:00 PM restriction.

2. Restaurants shall serve water only upon specific customer request.

STAGE 3 - WATER WARNING

Upon implementation by the District of STAGE 3, the following mandatory requirements shall apply to all customers, in addition to the mandatory requirements of STAGE 1 and STAGE 2, except as superceded herein:

1. Irrigating shall be limited to a maximum of two days per week based on an odd even schedule. Customers with street addresses that end with an odd number may irrigate only on Tuesdays and Saturdays. Customers with street addresses that end with an even number may irrigate only on Wednesdays and Sundays. Outside irrigation is not permitted on Mondays, Thursdays, and Fridays. Drip irrigation, including emitter and spray styles for non-turf areas, are excluded from this requirement.

2. Outside-automated irrigating systems shall not operate between 10:00 AM. and 12 midnight in addition to the 12 noon to 6:00 PM restriction.

3. Restaurants shall serve water only upon specific request.

STAGE 4 - WATER CRISIS

Upon implementation by the District of STAGE 4, the following mandatory requirements shall apply to all customers, in addition to the mandatory requirements of STAGE 1, STAGE 2, and STAGE 3, except as superceded herein:

1. Irrigating shall be limited to a maximum of one day per week based on an odd-even schedule. Customers with street addresses that end with an odd number may irrigate only on Saturdays. Customers with street addresses that end with an even number may irrigate only on Sundays. Irrigation is not permitted on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays. Drip irrigation, including emitter and spray styles for non-turf areas, is excluded from this requirement.

2. Outside automated irrigating systems shall not operate between 10:00 AM and 12 midnight in addition to the 12 noon to 6:00 PM restriction.

3. Restaurants shall serve water only upon specific request.

4. Potable water from the District's system shall not be used to fill new swimming pools, artificial lakes, or ponds until the WATER CRISIS has been declared over.

5. Water use for ornamental ponds and fountains is prohibited.

6. Washing of vehicles and other equipment shall be done on the lawn or at a commercial establishment that uses recycled or reclaimed water. Vehicles used in the interest of public health, safety, and welfare shall be exempt from this requirement.

STAGE 5 - WATER EMERGENCY

Upon implementation by the District of STAGE 4, the following mandatory requirements shall apply to all customers, in addition to the mandatory requirements of STAGE 1, STAGE 2, STAGE 3 and STAGE 4, except as superceded herein:

1. Outside irrigating (manual and automated) shall not be permitted.

2. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.

3. Restaurants shall serve water only upon specific request.

4. Potable water from the District's system shall not be used for swimming pools, spas, artificial lakes, ponds, or streams.

5. Water use for ornamental ponds and fountains is prohibited.

6. Washing of vehicles and other equipment shall be done at a commercial establishment that uses recycled or reclaimed water.

7. Potable water from the District's system shall not be used for construction purposes, including dust control, compaction, or trench jetting.

8. New connections to the District's system will not be allowed.

ENFORCEMENT

The District shall terminate water service to the property of a customer who receives two violations for noncompliance with conditions set forth herein.

1. Upon observation by authorized District personnel of a water waste condition, the District shall issue a warning with the first two observations by personal service or by notice left on premises requesting compliance with the District's conservation rules.

2. Upon observation by authorized District personnel of a third water waste condition at the same property address, the customer shall be issued a violation by personal service or by notice left on premise and a copy mailed to customer at the premises. The customer shall be notified, in writing, that if an additional observation of water waste is documented, the District shall issue a 2nd violation notice, and begin termination actions of water service to the subject address. In lieu of service termination, the District may opt to impose a penalty charge for water waste. The District shall indicate in writing said penalty charge, if applicable in the violation notice. If the customer is not the property owner, a copy of the writing shall be mailed to the owner of record.

3. Upon observation by authorized District personnel of a fourth, or subsequent water waste condition at the same property address, the customer shall be issued a violation notice by personal service or by notice left on premises and a copy mailed to the customer at the premises. The owner/customer shall then be notified, in writing by certified mail, that the water service to the subject address shall be terminated in fifteen (15) days. Reconnection to the District's system after said termination procedure will be subject to a reconnect charge equal to the District's actual incurred costs to date, including penalty fees, or to a minimum charge as follows, whichever is greater:

1st reconnect charge	$100.00 per service connection
2nd reconnect charge	$200.00 per service connection
3rd reconnect charge	$300.00 per service connection
4th reconnect charge	$400.00 per service connection

4. Subsequent violations will be treated in the same manner as a 4th water waste or 2nd violation (subsequent reconnect charges applied).

5. Prior to the scheduled termination, the customer may choose to pay the District's costs associated with the subject action, and any penalty costs in lieu of terminating service. The customer may, in writing, request a meeting with the District's General Manager to discuss the proposed

termination of service. Payment of the penalty charge and fees will avoid said termination and will be considered a "waiver of appeal".

6. If the customer requests a meeting with the General Manager, and said meeting does not resolve the proposed termination of service to the customers satisfaction, the customer may request a hearing before the Board of Directors. Such request will be made in writing and delivered to the District office within five (5) days from the date of the meeting between the customer and the District's General Manager.

7. If such request is made for a hearing before the Board, the matter shall be scheduled at the earliest possible date. A written notice of such hearing shall be mailed to customer at the premises at least ten (10) days prior to the date of such hearing.

8. Reconnection to the District's system after said termination procedure will be subject to a reconnect charges equal to the District's actual incurred costs to date, including penalty fees, and other related charges. The District must receive payment for said charges before the water service is restored.

9. The California Department of Health Services will be notified upon termination and reinstatement of service.

10. If the customer is not issued a warning or violation for a period of one year from the date of the last observed conservation rules violation, enforcement actions will revert to paragraph (1) of this section.

NOW THEREFORE BE IT FURTHER RESOLVED, that the District's General Manager is authorized and directed to carryout the intentions of this Resolution.

I certify that the foregoing Resolution was adopted by the Board of Directors of the Fair Oaks Water District at a Regular meeting held on the 12th day of June 2001, by the following vote:

AYES: Alessandri, Hafar, Henz & Plant

NOES: Brown

ABSTAIN:

ABSENT:

_____

Joseph H.E.P. Plant,
President
Board of Directors

ATTEST:

_____

Richard D. Plecker, General Manager/Secretary

Appendix F

2010 Wholesaler Consumer Confidence Report

2010 Consumer Confidence Report
Published by the
San Juan Wholesale Customer Agencies
P.O. Box 2157
Granite Bay, CA 95746

Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.

Printed on recycled paper.

2010 Consumer Confidence Report

Published by the San Juan Wholesale Customer Agencies

San Juan Water District • Citrus Heights Water District • Fair Oaks Water District • Orange Vale Water Company

San Juan Water District has been delivering a high-quality and dependable water supply for over 150 years and continues to be proactive in providing a reliable supply of quality water. Currently, the District serves 265,000 customers through our wholesale customer agencies. Together, we serve northeastern Sacramento County and portions of south Placer County, including Granite Bay. Our surface water, drawn from the American River watershed, and local groundwaters are tested on routine bases for microbiological as well as chemical quality.

The United States Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) have established strict quality standards for drinking water. These standards are designed to protect consumers from waterborne disease organisms and harmful chemicals. The USEPA requires public water systems to provide their consumers with an annual Consumer Confidence Report (CCR) with information about drinking water quality and compliance with the standards. **This year's CCR concludes, once again, that your drinking water meets all federal and state drinking water standards.**

Once again, your drinking water continues to meet all state and federal drinking water standards.

Contact Us

If you have any questions about this report or your water supply, please contact your local water provider. Each of the member agencies holds monthly board meetings that are open to the public as indicated below.

San Juan Water District

Contact Person:
Bill Sadler
(916) 791-1715
bsadler@sjwd.org
www.sjwd.org

Board Meetings:
2nd Wednesday each month
7:00 p.m.
9935 Auburn-Folsom Road
Granite Bay

Citrus Heights Water District

Contact Person:
Brian Hensley
(916) 725-6873
bhensley@chwd.org
www.chwd.org

Board Meetings:
2nd Tuesday each month
6:30 p.m.
6230 Sylvan Road
Citrus Heights

Fair Oaks Water District

Contact Person:
Michael Nisenboym, P.E.
(916) 844-3513
mnisenboym@fowd.com
www.fowd.com

Board Meetings:
2nd Monday every month
6:30 p.m.
10326 Fair Oaks Boulevard
Fair Oaks

Orange Vale Water Company

Contact Person:
John Wingerter
(916) 988-1693
jwingerter@orangevalewater.com

Board Meetings:
1st Tuesday each month
6:00 p.m.
9031 Central Avenue
Orangevale

Learn more about your water at www.sjwd.org

What's In Your Water?

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in the source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (USEPA) and the State Department of Public Health (Department) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

Where Does Your Water Come From?

Water from the Agencies comes from two sources: treated surface water and groundwater. San Juan Water District diverts and treats surface water from Folsom Lake. This treated water is then distributed to the Agencies. Orange Vale Water Company and San Juan Water District receive 100 percent of their supply from treated surface water. If you are a consumer of Citrus Heights or Fair Oaks water districts, your water is a mixture of treated surface water from San Juan Water District and groundwater from local wells.

SJWD – 100% surface water
OVWC – 100% surface water
CHWD – 89% surface water, 11% groundwater
FOWD – 89.9% surface water, 10.1% groundwater

Source water assessments have been conducted for all the water sources to enable the Agencies to understand the activities that have the greatest potential for contaminating the drinking water supplies. The groundwater sources were assessed in 2002 and the surface water source was evaluated in 2001. New wells for Citrus Heights Water District were assessed in 2008 and 2009. These assessments were conducted in accordance with Department guidelines and copies of the complete assessments are available for review at the respective agency offices.

San Juan Water District conducted the evaluation of the Folsom Lake source. It was found to be most vulnerable to potential contamination from the Folsom Lake State Recreation Area facilities, high-density housing and associated activities such as sewer and septic systems and fertilizer, pesticide and herbicide application, as well as illegal activities and dumping. The source water is typically treated using conventional filtration and disinfection that is designed to remove many contaminants. During summer months the source water quality is so good that the water can be treated more efficiently using direct filtration and disinfection. Again this year, your water meets all federal and state drinking water standards.

Citrus Heights and Fair Oaks water districts conducted assessments of their local groundwater wells. It was found that all the wells are vulnerable to commercial urban activities, such as active and historic gas stations, dry cleaners, leaking underground storage tanks, a known contaminant plume, and sewer collection systems, none of which are associated with any detected contaminants.

Although Orange Vale Water Company does not currently utilize available local groundwater, assessments found that wells within their service area would be most vulnerable to rural grazing activities.

How to Read the CCR

Find your water supplier along the top of the chart. You will need to look at both San Juan surface water and the groundwater supplies if you receive water from Citrus Heights or Fair Oaks water districts. If you don't know who your water supplier is, we would be happy to help you. Please call San Juan Water District at 791-0115. You can then compare the levels of your water supply to the federal and state standards.

A Note For Sensitive Populations

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Important Information About Radon

Radon is a radioactive gas that you cannot see, taste or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will, in most cases, be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call the California Radon Program (1-800-745-7236) or call EPA's Radon Hotline at (1-800-SOS-RADON).

General Information on Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The San Juan Wholesale Customer Agencies are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

The San Juan Wholesale Customer Agencies test distribution system samples every three years for lead and over ninety-five percent of samples are non-detectable and therefore not reported in the data table.

Key to Abbreviations

PPB	parts per billion or micrograms per liter (µg/L)
PPM	parts per million or milligrams per liter (mg/L)
MFL	million fibers per liter (>10µm long)
NTU	nephelometric turbidity units
µS/CM	microsiemens per centimeter
pCi/L	picocuries per liter
ND	not detected
NR	not required
N/A	not applicable

Water Quality Definitions

Maximum Contaminant Level (MCL) — The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.

Public Health Goal (PHG) — The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

Maximum Contaminant Level Goal (MCLG) — The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

Maximum Residual Disinfectant Level (MRDL) — The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) — The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Primary Drinking Water Standard (PDWS) — MCLs and MRDLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.

Treatment Technique (TT) — A required process intended to reduce the level of a contaminant in drinking water.

Regulatory Action Level (AL) — The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Notification Level (NL) — Health-based advisory level set by the Department for constituents with no MCL. This is not an enforceable standard, although requirements and recommendations may apply if detected above this level.

San Juan Wholesale Customer Agencies – 2010 Table of Detected Constituents

DETECTED PRIMARY DRINKING WATER CONSTITUENTS regulated to protect your health

CONSTITUENT	UNITS	PHG or (MCLG) or [MRDLG]	MCL or [MRDL]	San Juan Surface Water Including Orange Vale Water Company(a)			Citrus Heights Groundwater			Fair Oaks Groundwater			MAJOR SOURCES
				RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	
Arsenic	PPB	0.004	10	ND	ND	2010	ND - 4.1	ND	2008, 2010	2.2 - 2.9	2.6	2006, 2009	Erosion of natural deposits
Fluoride	PPM	1	2.0	ND	ND	2010	ND - 0.26	0.12	2008, 2009, 2010	0.1	0.1	2006, 2009	Erosion of natural deposits
Nitrate (as nitrate)	PPM	45	45	ND	ND	2010	4.8 - 12	7.8	2010	ND - 2.9	2.1	2007, 2010	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits
Asbestos	MFL	7	7	ND - 0.2	ND	2006	ND	ND	2009	ND	ND	2008, 2009	Erosion of natural deposits
Chlorine Residual - distribution system	PPM	[4]	[4]	0.14 - 1.97 (0.65-1.19)	0.81 (0.95)	2010	0.25 - 1.2	0.78	2010	0.24 - 1.01	0.70	2010	Drinking water disinfectant added for treatment
Total Trihalomethanes - distribution system	PPB	N/A	80	23 - 53 (24 - 44)	36 (38)	2010	ND - 59	30	2010	31 - 61	43	2010	By-product of drinking water disinfection
Haloacetic Acids - distribution system	PPB	N/A	60	19 - 35 (24 - 35)	26 (28)	2010	ND - 38	20	2010	22 - 37	29	2010	By-product of drinking water disinfection
Control of Disinfection By-Product Precursors (TOC) (raw water) (b)	PPM	N/A	TT = 2	1.3 - 1.8	1.5	2010	NR	N/A	N/A	NR	N/A	N/A	Various natural and manmade sources
CONSTITUENT	UNITS	PHG OR (MCLG)	MCL	LEVEL FOUND		YEAR SAMPLED	LEVEL FOUND		YEAR SAMPLED	LEVEL FOUND		YEAR SAMPLED	MAJOR SOURCES
Turbidity (b)	NTU	NONE	TT = 1 NTU	0.033		2010	NR		N/A	NR		N/A	Soil runoff
	% Samples	NONE	TT = ≤0.3 NTU	99.9998		2010	NR		N/A	NR		N/A	
	UNITS	PHG OR (MCLG)	MCL	90th PERCENTILE	# SAMPLED/ # EXCEED AL	YEAR SAMPLED	90th PERCENTILE	# SAMPLED/ # EXCEED AL	YEAR SAMPLED	90th PERCENTILE	# SAMPLED/ # EXCEED AL	YEAR SAMPLED	MAJOR SOURCES
Copper	PPM	0.3	1.3	ND (0.061)	30/0 (30/0)	2009 (2008)	ND	30/0	2009	ND	30/0	2010	Internal corrosion of household plumbing systems; erosion of natural deposits
	UNITS	PHG OR (MCLG)	MCL	HIGHEST MONTHLY RESULT	# MONTHS WITH POSITIVE SAMPLE	YEAR SAMPLED	HIGHEST MONTHLY RESULT	# MONTHS WITH POSITIVE SAMPLE	YEAR SAMPLED	HIGHEST MONTHLY RESULT	# MONTHS WITH POSITIVE SAMPLE	YEAR SAMPLED	MAJOR SOURCES
Total Coliform Bacteria	% Samples	(0)	>5% monthly samples positive	1.89 (0)	1 (0)	2010	0	0	2010	0	0	2010	Naturally present in the environment

DETECTED SECONDARY DRINKING WATER CONSTITUENTS regulated for aesthetic qualities

CONSTITUENT	UNITS	PHG or (MCLG)	MCL	San Juan Surface Water Including Orange Vale Water Company			Citrus Heights Groundwater			Fair Oaks Groundwater			MAJOR SOURCES
				RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	
Color	UNITS	N/A	15	ND	ND	2010	ND	ND	2008, 2010	ND	ND	2006, 2009	Naturally-occurring organic materials
Odor	UNITS	N/A	3	ND	ND	2010	ND	ND	2008, 2010	1	1	2006, 2009	Naturally-occurring organic materials
Manganese	PPB	N/A	50	ND	ND	2010	ND - 16	ND	2008, 2010	ND	ND	2006, 2009	Leaching from natural deposits
Chloride	PPM	N/A	500	2.1 - 3.1	2.8	2010	10 - 21	16.2	2008, 2010	2.6 - 23	6.8	2006, 2009	Runoff/leaching from natural deposits
Specific Conductance	µS/CM	N/A	1,600	66.8 - 85	74	2010	230 - 380	304	2008, 2010	120 - 550	228	2006, 2009	Substances that form ions when in water
Sulfate	PPM	N/A	500	5.3 - 6.7	6.2	2010	7.5 - 11	9.5	2008, 2010	3.8 - 28	10.8	2006, 2009	Runoff/leaching from natural deposits
Turbidity	NTU	N/A	5	0.018 - 0.033	0.025	2010	ND - 0.32	0.12	2008, 2010	0.22 - 0.64	0.39	2006, 2009	Soil runoff
Total Dissolved Solids	PPM	N/A	1,000	41 - 54	46	2010	200 - 280	224	2008, 2010	100 - 400	180	2006, 2009	Runoff/leaching from natural deposits

DETECTED UNREGULATED DRINKING WATER CONSTITUENTS (c)

CONSTITUENT	UNITS	PHG or (MCLG)	NL	San Juan Surface Water Including Orange Vale Water Company			Citrus Heights Groundwater			Fair Oaks Groundwater			MAJOR SOURCES
				RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	RANGE	AVERAGE	YEAR SAMPLED	
Hardness	PPM	N/A	NONE	26 - 34	29	2010	89 - 140	112	2008, 2010	48 - 210	89	2006, 2009	Hardness is the sum of polyvalent cations present in the water, generally naturally occurring magnesium and calcium.
Sodium	PPM	N/A	NONE	1.8 - 2.7	2.2	2010	11 - 23	18.2	2008, 2010	4.9 - 32	11.5	2006, 2009	Naturally occurring salt in the water
Calcium	PPM	N/A	NONE	8.2 - 10	8.8	2010	21 - 33	25.4	2008, 2010	12 - 43	20.1	2006, 2009	Erosion of natural deposits
Magnesium	PPM	N/A	NONE	1.3 - 2.2	1.7	2010	8.7 - 16	12.1	2008, 2010	4.4 - 25	9.4	2006, 2009	Erosion of natural deposits
Radon 222	pCi/L	NONE	NONE	ND	ND	2006	165 - 304	231	1999 - 2009	114 - 333	215	2005	Erosion of natural deposits

(a)– Data for OVWC Distribution System is shown in parenthesis.
(b)– Only surface water sources must comply with PDWS for Control of Disinfection By-Product Precursors and turbidity.
(c)– Unregulated contaminant monitoring helps determine where certain contaminants occur and whether they need to be regulated.
The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently.
Some of our data, though representative, are more than one year old.

Appendix G

Groundwater Management Plan

(Document is available on enclosed CD)

Sacramento Groundwater Authority Groundwater Management Plan

SGA

December 2008

SACRAMENTO GROUNDWATER AUTHORITY

GROUNDWATER MANAGEMENT PLAN

December 2008

Sacramento Groundwater Authority
Managing Groundwater Resources in Northern Sacramento County

February 6, 2009

Sacramento Groundwater Authority
5620 Birdcage Street, Suite 180
Citrus Heights, CA 95610
Tel: (916) 967-7692
Fax: (916) 967-7322

Members:
California American Water
Carmichael Water District
Citrus Heights Water District
Del Paso Manor Water District
Fair Oaks Water District
Folsom, city of
Golden State Water Company
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
agricultural and self-supplied representatives

To Interested Parties and Individuals:

The Sacramento Groundwater Authority (SGA) is pleased to release this revised Groundwater Management Plan (GMP), adopted December 11, 2008 by the SGA Board of Directors. The plan represents a continuation of the GMP initially adopted in 2003 with a goal of maintaining a sustainable groundwater basin in Sacramento County north of the American River. While the initial GMP was effective in helping to achieve this goal, SGA committed to a comprehensive review of its plan every five years to ensure that management objectives and actions remain responsive to developing needs.

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.

SGA is grateful for the partnerships with the U.S. Army Corps of Engineers and the California Department of Water Resources that have allowed us to significantly advance our understanding and enhance our management decision-making in the basin. SGA also appreciates the efforts of member agencies and their respective Board representatives that ensure successful management in the basin.

Comments and suggestions to improve our management of the basin are always welcome. To view our most recent Basin Management Report, which biennially reviews GMP actions and results, please visit the SGA web site at www.sgah2o.org.

Sincerely,

John K. Woodling
Executive Director

RESOLUTION NO. 2008-04

A RESOLUTION OF THE SACRAMENTO GROUNDWATER AUTHORITY ADOPTING AN UPDATED 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 previously adopted a Groundwater Management Plan for the North Area Groundwater Basin on December 11, 2003; and

WHEREAS, the SGA has committed to a five-year comprehensive review interval of its Groundwater Management Plan for the North Area Groundwater Basin; and

WHEREAS, the updated 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 pursuant to CEQA Guidelines Section 15262 because the Groundwater Management Plan is a planning study which identifies potential projects, programs, and policies for possible future actions which have not yet been approved, adopted or funded; and Sections 15306, 15307, and 15308 because the Plan consists of basic data and information collection and includes possible actions, subject to future adoption and approval, which would protect natural resources and the environment.

PASSED AND ADOPTED by the Board of Directors of the Sacramento Groundwater Authority, on December 11, 2008.

By: _____
Chairperson, Sacramento Groundwater Authority

Attest: _____
Nancy Marrier, Finance and Administrative Services Officer/Clerk

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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
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	Department of Health Services (now known as the Department of Public Health)
DPH	Department of Public Health (formerly known as the Department of Health Services)
DPMWD	Del Paso Manor Water District

ABBREVIATIONS AND ACRONYMS (Continued)

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
GSWC	Golden State Water Company
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
IRCTS	Inactive Rancho Cordova Test Site
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

ABBREVIATIONS AND ACRONYMS (Continued)

NCMWC	Natomas Central Mutual Water Company
NDMA	n-nitrosodimethylamine
NGS	National Geodetic Survey
North Area Basin	Sacramento County Portion of the North American Subbasin
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 (e.g., American River Water Rights)
PSA	WFA Purveyor Specific Agreement
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
SCGA	Sacramento Central Groundwater Authority
SCWA	Sacramento County Water Agency
SGA	Sacramento Groundwater Authority
SJWD	San Juan Water District
SMWA	Sacramento Metropolitan Water Authority
SOP	Standard Operating Procedure
South Sutter	South Sutter Water District

ABBREVIATIONS AND ACRONYMS (Continued)

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

Section 1 INTRODUCTION

The Sacramento Groundwater Authority (SGA) is a joint powers authority (JPA) created to manage the Sacramento region's North Area Groundwater Basin (North Area 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 an essential element to implement a comprehensive solution for preserving the lower American River and ensuring a reliable water supply through the year 2030.

The SGA draws its authority from a joint powers agreement 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. In turn, these agencies chose to manage the basin in a cooperative fashion by allowing representatives of the 14 local water purveyors and representatives for agricultural and self-supplied pumpers to serve as the Board of Directors of the SGA[2]. The joint powers agreement is included as **Appendix A** of the GMP.

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[3] in the Water Forum Agreement (WFA)[4]. To accomplish this objective and to provide a safe, reliable water supply for the rapidly growing northern Sacramento County, this groundwater management plan (GMP) provides a framework for the many actions needed in the North Area Basin. This GMP represents a renewed commitment to groundwater management in that it is a comprehensive update to the initial SGA GMP first adopted in December 2003[5]. As this GMP is a comprehensive update of 2003 SGA GMP, many of the key plan actions have changed to reflect recent conditions. A complete listing of the original 2003 action items and their status is included in **Appendix B**. The SGA's boundary, the area covered by this GMP, includes only the portion of Sacramento County north of the American River (**Figure 1**).

[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, 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, Golden State Water Company, Natomas Central Mutual Water Company, Orange Vale Water Company, Rio Linda/Elverta Community Water District, Sacramento Suburban Water District, San Juan Water District, and individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts).

[3] This value was estimated based on long term average water use, supply conditions, and facilities in the basin at the time of the WFA. This value 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 http://www.waterforum.org or contact the Water Forum office at (916) 808-1999.

[5] The 2003 version of the SGA GMP is available online at http://www.sgah2o.org.

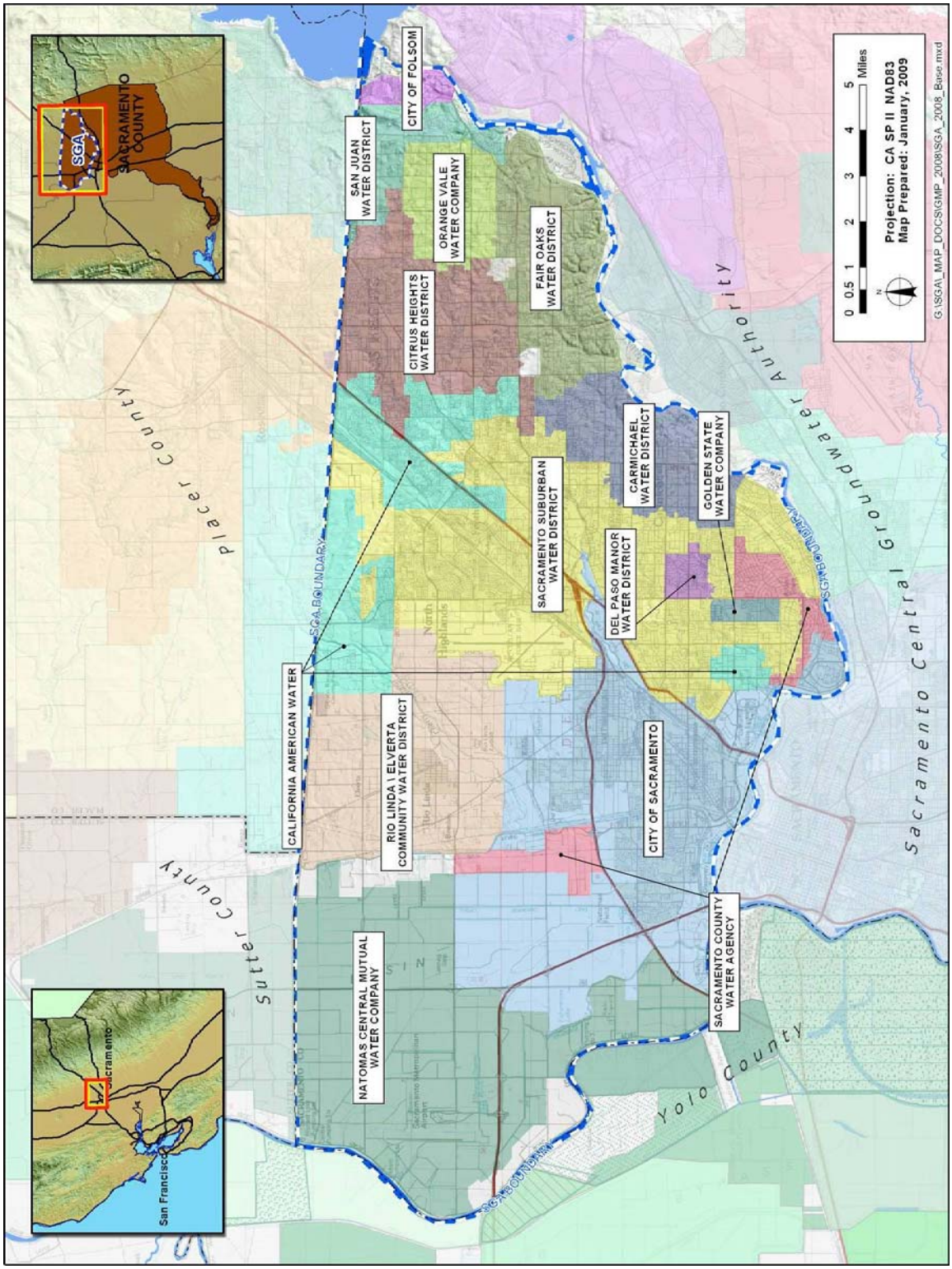

Figure 1. Boundary of the SGA North Area Basin Covered by this GMP

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.

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.
- The American River Basin Cooperating Agencies (Cooperating Agencies).
- The Regional Water Authority (RWA).

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 April 2000, Water Forum members approved the WFA, which consists of seven integrated actions necessary to accomplish these co-equal objectives. The WFA prescribes a local conjunctive use program for Folsom Reservoir, the lower American River, and the adjacent

[6] The SMWA members were located both north and south of the American River and included: 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 (note that some purveyor names have been changed and/or undergone consolidation since the formation of the SMWA).

groundwater basins. To help facilitate this conjunctive use program, one of the seven WFA 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 Basin. The groundwater element also estimated and recommended an average annual sustainable groundwater yield for the North Area Basin of 131,000 acre-feet per year (AF/year). 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 were an ad-hoc group of local water purveyors in northern Sacramento County and southern Placer County[7]. Each member of the Cooperating Agencies was a signatory of the WFA. The Cooperating Agencies formed to complete a Regional Water Master Plan (RWMP), the objective of which was to identify the facilities and operational agreements necessary to implement the WFA for the northern Sacramento/Placer area. This plan identified opportunities to improve the availability of water supplies through additional conjunctive use of surface water and groundwater in the region. Expanded conjunctive use operations are a key component to assuring a sustainable groundwater resource within the SGA area. Upon completion of the RWMP in 2003, the Cooperating Agencies dissolved as an organization. Many of the functions of the Cooperating Agencies were then assumed by the RWA.

1.1.4 RWA

The RWA superceded 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 activities of the RWA is facilitating implementation of the conjunctive use program prescribed by the WFA and the RWMP. The RWA currently has nineteen 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 North Area Basin. The activities of the RWA and SGA are highly coordinated as they share a common office and staff.

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[7] The "Cooperating Agencies" included water purveyors in both Sacramento County and Placer County: California American Water, 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 Sacramento, Placer, El Dorado, and Yolo counties including: California American Water, Carmichael Water District, Citrus Heights Water District, City of Folsom, City of Lincoln, City of Roseville, City of Sacramento, City of West Sacramento, Del Paso Manor Water District, El Dorado Irrigation District, Fair Oaks Water District, Fruitridge Vista Water Company, Golden State 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, and San Juan Water District.. 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.

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

In addition to the on-going water supply and conservation programs being implemented by individual SGA members, there are several strictly groundwater-related activities taking place that affect the North Area Basin. 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) and Sacramento County.
- 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 Sacramento County Environmental Management Department (EMD) and the Central Valley Regional Water Quality Control Board (CVRWQCB).
- Natomas Central Mutual Water Company (NCMWC) is currently updating its GMP for its service area in Sacramento and Sutter counties (see **Figure 1**). The plan will characterize the availability of groundwater for use during periods in which surface water supplies are insufficient to meet demands.

Coordination between these efforts and the SGA will be discussed in more detail later in this GMP.

1.2 PURPOSE OF THE SGA GMP

The groundwater management goal of the SGA is to maintain a sustainable, high-quality 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 framework for coordinating the many independent management activities into a cohesive set of management objectives and related actions for implementation by the SGA.

1.3 AUTHORITY TO PREPARE AND IMPLEMENT A GMP

The authority of the SGA to manage the North Area Basin is provided through the joint powers agreement (see **Appendix A**). 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].

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

- DWR Bulletin 118 (2003) components (seven recommended components).
- 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
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.	3.5.5
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.	Figure 2
7. For agencies not overlying groundwater basins, prepare GMP using appropriate geologic and hydrogeologic principles.	
B. DWR's Suggested Components	
1. Manage with guidance of advisory committee.	3.4.3
2. Describe area to be managed under GMP.	Section 2
3. Create link between BMOs and goals and actions of GMP.	Figure 9
4. Describe GMP monitoring program.	3.5
5. Describe integrated water management planning efforts.	3.8.1
6. Report on implementation of GMP.	3.4.1
7. Evaluate GMP periodically.	3.4.3
C. CWC § 10750 *et seq.*, Voluntary Components	
1. Control of saline water intrusion.	3.7.6
2. Identification and management of wellhead protection areas and recharge areas.	3.7.3
3. Regulation of the migration of contaminated groundwater.	3.7.5
4. Administration of well abandonment and well destruction program.	3.7.2
5. Mitigation of conditions of overdraft.	3.8.1
6. Replenishment of groundwater extracted by water producers.	3.8
7. Monitoring of groundwater levels and storage.	3.5.1
8. Facilitating conjunctive use operations.	3.8
9. Identification of well construction policies.	3.7.1
10. Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.	1.1 an 3.8
11. Development of relationships with state and federal regulatory agencies.	3.8.1 Action 7
12. Review of land use plans and coordination with land use planning agencies to assess activities that create reasonable risk of groundwater contamination.	3.7.3

Section 2 WATER RESOURCES SETTING

Locations of water purveyors within the North Area Basin are shown in **Figure 1**. Within the SGA boundaries, water purveyors use 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.

2.1.1 Overview of the Hydrogeologic Setting of the SGA Area

The groundwater resources of Sacramento County have been extensively investigated and reported in DWR Bulletin 118-3, Evaluation of Ground Water Resources: Sacramento County (DWR, 1974). 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 Riverbank (formerly known as Victor), and Turlock Lake (formerly known as Fair Oaks), Laguna, 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.

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

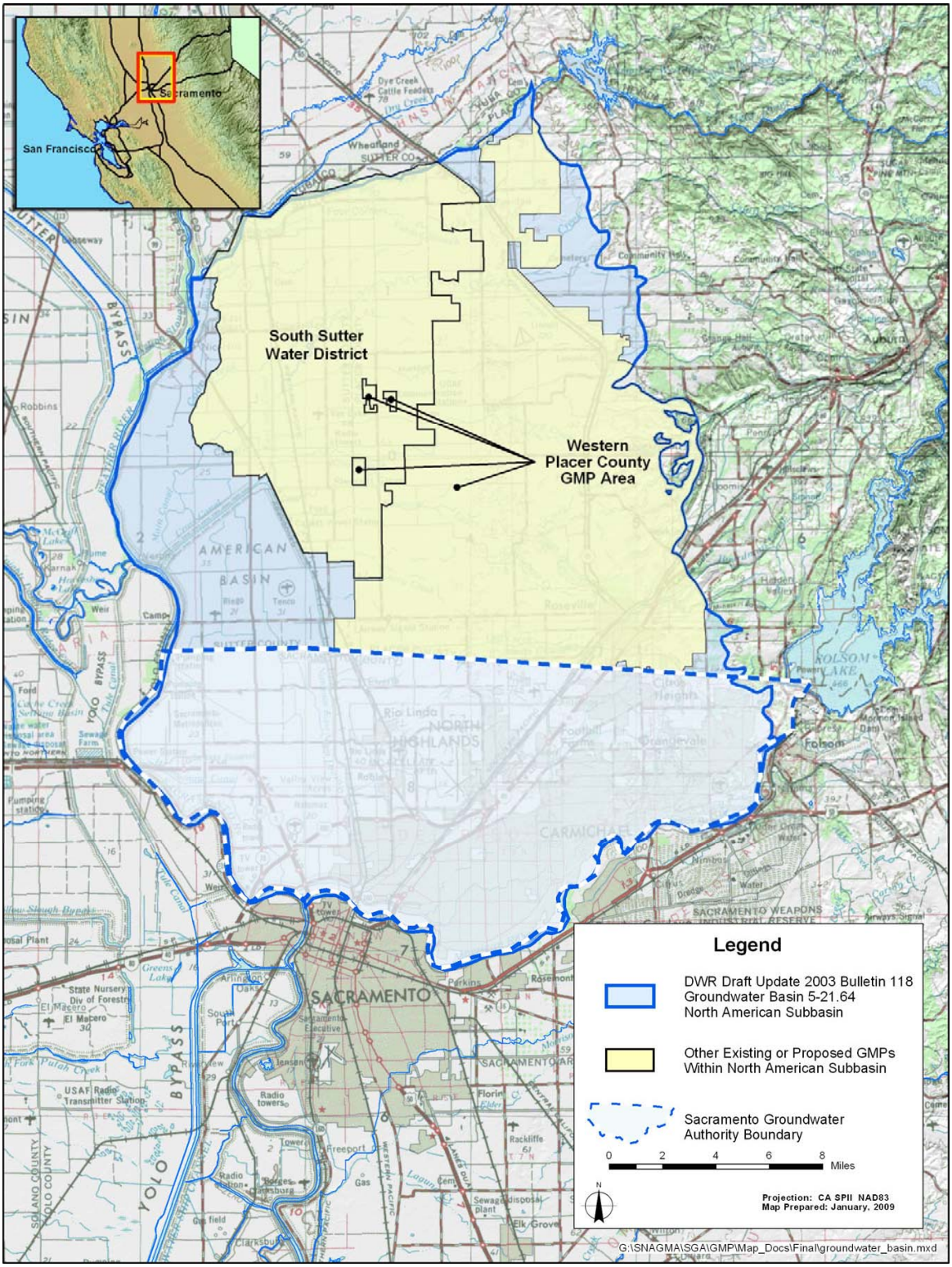

Figure 2. Location of North American Groundwater Subbasin

As described within DWR Bulletin 118-3, these formations form a maximum thickness of about 2,000 feet under the Sacramento River. The primary water-bearing formations (Laguna and Mehrten) are overlain by much younger basin, natural levee/channel, and alluvium deposits (CDMG, 1981). The Ione and Valley Springs formations exist beneath the Mehrten Formation and are thought to be a transitional aquifer system that contains a mixture of saline and fresh groundwater. 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.

2.1.1.1 Water –Bearing Formation Characteristic within the SGA Area

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 Riverbank, Turlock Lake, and Laguna Formations (the "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 (the "lower aquifer") typically exhibits semi-confined conditions. Provided below is a more detailed description of the water-bearing formation characteristics within the SGA area.

Turlock Lake and Riverbank Formations – Within the SGA area, these Formations, designated Qtl and Qr on **Figure 3**, overlie the Laguna Formation and have been laid down along the American River downstream of Folsom Dam. These Formations are relatively young (Pleistocene in age) and largely unconsolidated. Formation sediments are primarily derived from decomposed granite and metamorphic rock of the western Sierra (CDWR, 1974).
Laguna Formation – The Laguna Formation, designated as Tl on **Figure 3**, is late Pliocene to early Pleistocene in age and is non-volcanic, comprised of heterogeneous deposits of silt, clay, sands and fine gravels that vary from tan to brown in color. The lower portion of the Laguna Formation often consists of a gradational contact with the Mehrten Formation that has been named the Laguna-Mehrten Transitional Zone (Schlemon, 1967). This transitional zone consists of non-volcanic, micaceous Laguna sediments that are interbedded with volcanic Mehrten sediments, sometimes referred to as reworked Mehrten deposits. The Laguna formation will yield moderate quantities of water to wells screened in fine grained deposits with wells screened in well sorted Laguna granitic sands producing higher yields (DWR, 1974).

Mehrten Formation – The Mehrten Formation designated as Tm on **Figure 3**, is very different than the overlying Laguna Formation. The Mehrten Formation's gray and black andesitic sands, interbedded with blue to brown clays and gray tuff-breccia sand, are all volcanic in origin in contrast with the tan to brown color non-volcanic sediments of the Laguna Formation. The Mehrten Formation was derived from reworked andesitic volcanic mudflow deposits that are late Miocene to early Pliocene in age. The Mehrten formation can be divided into two different units: the upper sedimentary unit is composed of well sorted black andesitic sands, sometimes with cobbles and boulders, (reported by well drillers as "black sands") and interbedded blue to brown clays; the lower consolidated unit is a hard and very dense gray tuff-breccia (reported by well drillers as "lava"). The Mehrten units range in thickness from 200 to 1,200 feet and form a semi-confined aquifer, which dips toward the west at approximately 1 to 2 degrees. The most resistant beds in the Mehrten are andesite mudflow breccias that form steep cliffs where they are exposed along the lower American River north of Lake Natoma. The Mehrten formation is a major aquifer and provides copious quantities of groundwater to many wells within the North

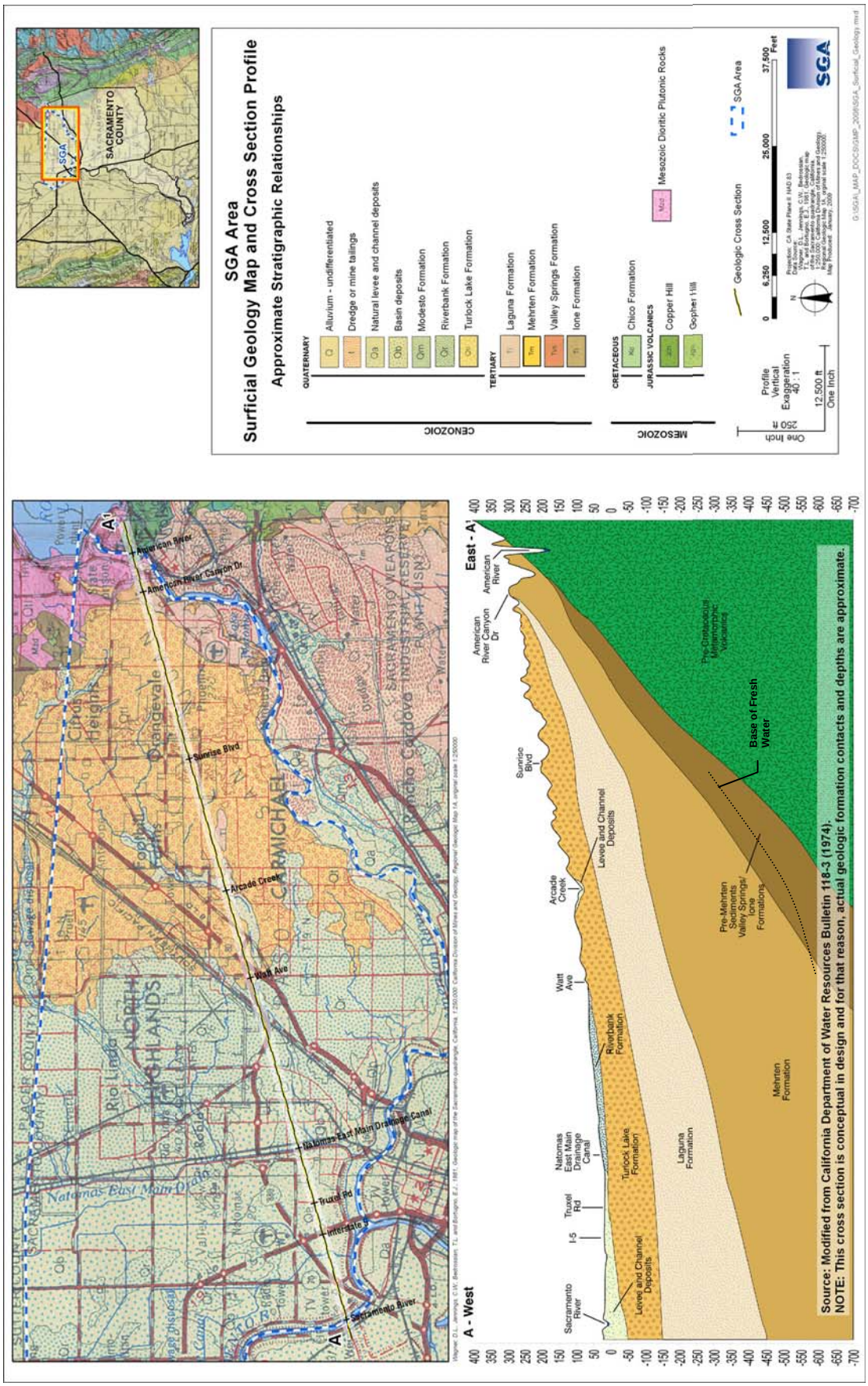

Figure 3. Regional Stratigraphic Column

Area Basin. The volcanic sands and gravels yield large quantities of water to wells, while the clays yield little water and the tuff-breccias yield low quantities (DWR, 1974).

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 is prone to having higher concentrations of total dissolved solids (TDS, a measure of salinity) than the upper aquifer. 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 to be non-potable.

This description of water quality is based on data used to populate the region's Data Management System (DMS) and on contaminant information tracked by the CVRWQCB and the Sacramento County EMD. Available groundwater quality data from monitoring between 1991 and 2006 for approximately 260 public supply wells are currently in the DMS. Groundwater in the North Area Basin is highly suitable as a source of public drinking water supply from a general chemistry perspective. Specifically, the primary constituents referred to for "general chemistry" include total dissolved solids (TDS), iron, manganese, arsenic, and nitrate. The general chemistry analysis below is based on required monitoring of public supply wells during 2005 and 2006.

Despite the very good general chemistry of groundwater in the North Area Basin, there are several contaminant plumes and many point sources of contamination (e.g., leaking underground storage tanks) that local water managers must consider when managing the basin to ensure a sustainable water supply. These water quality data are discussed further below.

Total Dissolved Solids. Based on a sample size of 107 supply wells, TDS results in most wells are within the secondary drinking water standard[11] of 500 milligrams per liter (mg/L). TDS ranges from 100 mg/L to 840 mg/L, with only three wells exceeding the 500 mg/L standard. The average TDS of these samples is 266 mg/L.

Iron. Iron has a secondary MCL of 300 micrograms per liter (μg/L). This is a secondary standard, because, at elevated concentrations, iron tends to have a bad taste and can precipitate as a red-brown solid on plumbing fixtures. In general, dissolved iron is not a problem in SGA-area public supply wells. Of the 122 wells sampled from 2005 through 2006, 80 wells were below the reporting limit of 10 μg/L. Of the 42 wells with detections, 18 wells had concentrations exceeding the secondary MCL.

Manganese. Manganese has a secondary MCL of 50 μg/L. Elevated concentrations of manganese can have a bad taste and can precipitate as a black solid on plumbing fixtures. In general, dissolved manganese is not a significant issue in SGA-area public supply wells. Of the 119 wells sampled from 2005 through 2006, 89 wells were below the reporting limit of 10 μg/L g/L. Of the 30 wells with detections, 14 wells had concentrations exceeding the secondary MCL.

[11] For many of the more commonly occurring constituents found in water, primary or secondary standards are established by Federal or State agencies for drinking water. Primary standards are established to reduce health risks to consumers, while secondary deal mainly with taste and aesthetics concerns.

Arsenic. As of January 26, 2006, the federal drinking water standard for arsenic was lowered to 10 micrograms per liter (μg/L). In general, elevated arsenic in the northern Sacramento region is not the significant problem it is in many parts of the southern San Joaquin Valley. Of the 120 distinct arsenic samples from wells during the period from 2005 through 2006, 8 were below the analytical detection level of 2 μg/L. Of the remaining wells with values above the detection level, the average was only 3.7 μg/L, with two wells exceeding the new federal MCL.

Nitrate. The primary MCL for nitrate (as NO3) in drinking water is 45 mg/L. Tests have shown that nitrate levels in public supply wells are generally not of concern within the North Area Basin. Of the 185 samples from public supply wells tested during 2005 and 2006, the average concentration was 9.3 mg/L with a maximum observed concentration of 33 mg/L.

Known "Principal" Plumes. Principal groundwater contaminant plumes within or near the SGA area are known to exist from source areas identified as the former McClellan AFB, the former Mather Air Force Base (Mather AFB), Aerojet-General Corp, and the Inactive Rancho Cordova Test Site (IRCTS) are shown on **Figure 4**.

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. The aerial extent of these plumes generally represents the composite California drinking water MCL for one or more of the primary contaminants of concern (COC).

For the McClellan AFB plumes, the COCs are trichloroethene (TCE), tetrachloroethene (PCE), cis-1,2-ichloroethene (DCE), and 1,2-dichloroethane (DCA). For the Mather AFB plumes, the primary COCs are TCE, PCE, and carbon tetrachloride. For the Aerojet and IRCTS plumes, the primary COCs are TCE, n-nitrosodimethylamine (NDMA), and perchlorate..

Point Source Contamination. There are typically about 200 active leaking underground storage tank (LUST) sites within the SGA area at any given time. A precise number is difficult to track as new sites are continually being identified while some sites are concluding cleanup activities. The latest information on the status of each LUST site is available through the State Water Resource Control Board (http://geotracker.swrcb.ca.gov). While many of these sites can be fully remediated, the aggregate impact from undetected contamination on groundwater quality in the basin cannot be determined and may ultimately be considerable.

2.1.1.3 Groundwater Levels

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** is a representative contour plot of equal elevations of groundwater in the North Area Basin for Spring 2008. The low elevation in the area is approximately 40 feet below mean sea level (MSL), represented within the -40 foot contour. In general, the rest of the North Area Basin does not show any distinctive patterns with respect to regional groundwater elevations, and the water table tends to mimic the local topography. This is also reflected in the increasing density of water elevation contours as the land surface elevation gradient increases in the eastern part of the North Area Basin.

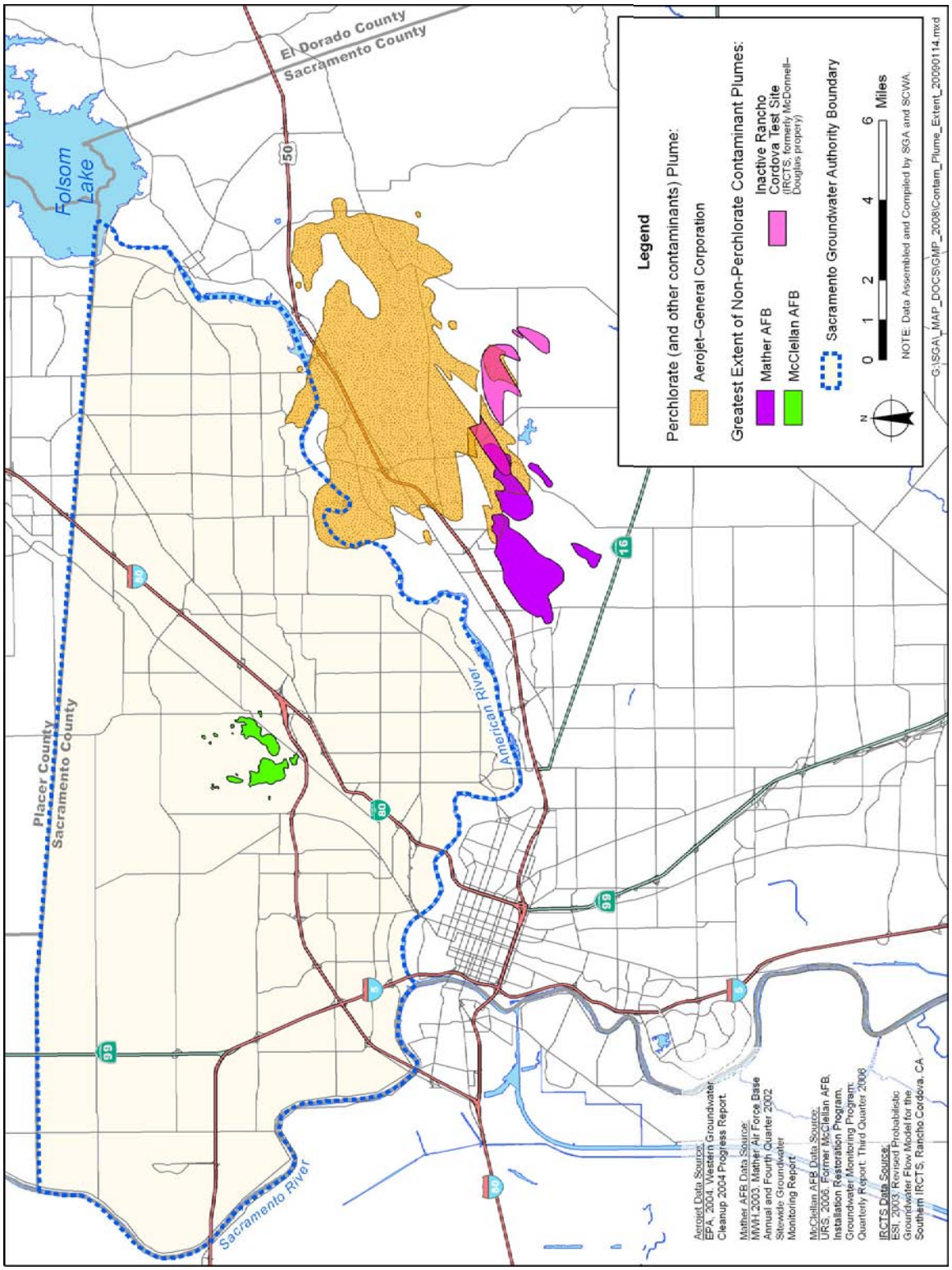

Figure 4. Principal Contaminant Plumes

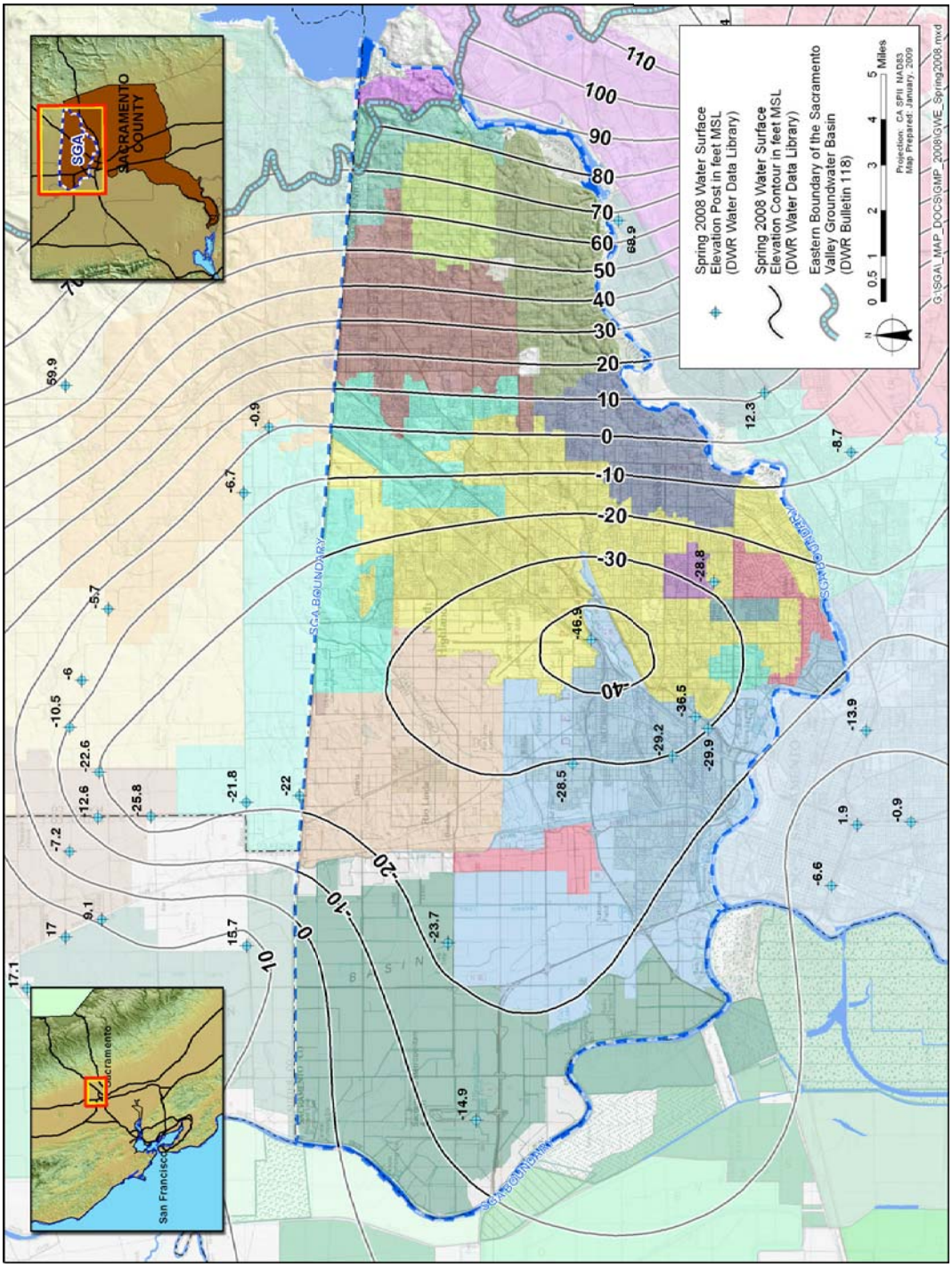

Figure 5. Spring 2008 Groundwater Elevation Contours

Groundwater Level Trends. **Figure 6** shows the locations and hydrographs of selected long-term monitoring wells in the basin. In general, past data shows that in the central portion of the North Area Basin groundwater elevations declined at a rate of nearly 1.5 feet per year from around the 1950s through the mid-1990s. Since the mid-1990s, groundwater elevations have stabilized within the regional cone of depression and, in some cases, groundwater elevations are continuing to increase slightly. This trend is largely due to operational changes as noted later in this section. For purposes of further discussion, the North Area Basin can be divided into three sub-areas.

Western Area. The western portion of the North Area Basin is bounded by the Sacramento River on the west and extends east to approximately the boundary between Natomas Central Mutual Water Company and Rio Linda/Elverta Community Water District (**Figure 6**). This area is served almost exclusively by surface water. Hydrographs for SWP-216, SWP-261, and SWP-263 show that groundwater elevations range from about five feet below MSL to 20 feet above MSL. The hydrographs show that groundwater elevations have been fairly stable over the period of record, with very modest increases in 2003 and 2004. These wells typically experience only seasonal fluctuations.

Central Area. The central portion of the North Area Basin is bounded roughly on the west by the boundary between Natomas Central Mutual Water Company and Rio Linda/Elverta Community Water District and to the east by a line running approximately along San Juan Avenue (**Figure 6**). This area currently uses a combination of surface water and groundwater, but has historically relied predominantly on groundwater. Hydrographs for SWP-220, SWP-229, SWP-232, SWP-240, SWP-270 (also shown in **Figure 7**), and SWP-276 show that groundwater elevations currently range from about 10 feet above MSL to 40 feet below MSL. The drawdown in these wells over the past 60 years has been in excess of about 70 feet. Groundwater elevations in this area continued to decline every year until around the mid-1990s, when groundwater elevations stabilized due, at least in part, to expanded conjunctive use operations. Groundwater elevations have increased slightly over previous years despite the increase in groundwater extraction in the basin in 2007. This is likely because groundwater for public supply has been reduced in the immediate vicinity of McClellan to help contain the movement of contamination.

Eastern Area. The eastern portion of the North Area Basin extends roughly east of San Juan Avenue to the eastern edge of the basin (**Figure 6**). This area has historically relied primarily on surface water. Hydrographs for wells SWP-236 and SWP-283 are typically in excess of 100 feet above MSL. Groundwater elevations can be highly varied from one well to another, as the area has rolling topography and the groundwater elevation tends to mimic ground elevations. Hydrographs indicate that groundwater elevations have not changed greatly with time, reflecting the limited use of groundwater in the area. There were no notable changes in recent groundwater elevations.

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.

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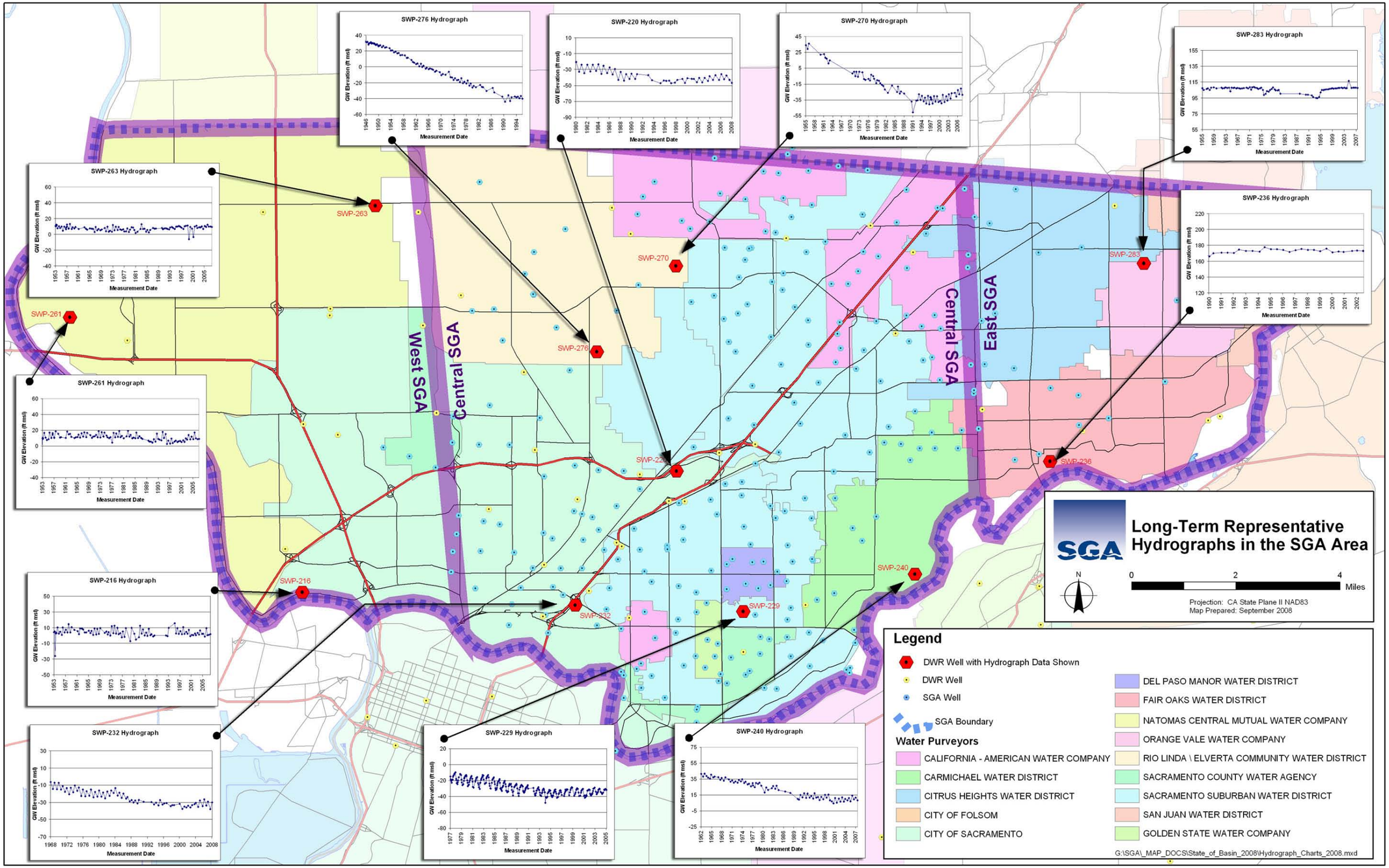

Figure 6. Representative Groundwater Hydrographs in the SGA Area

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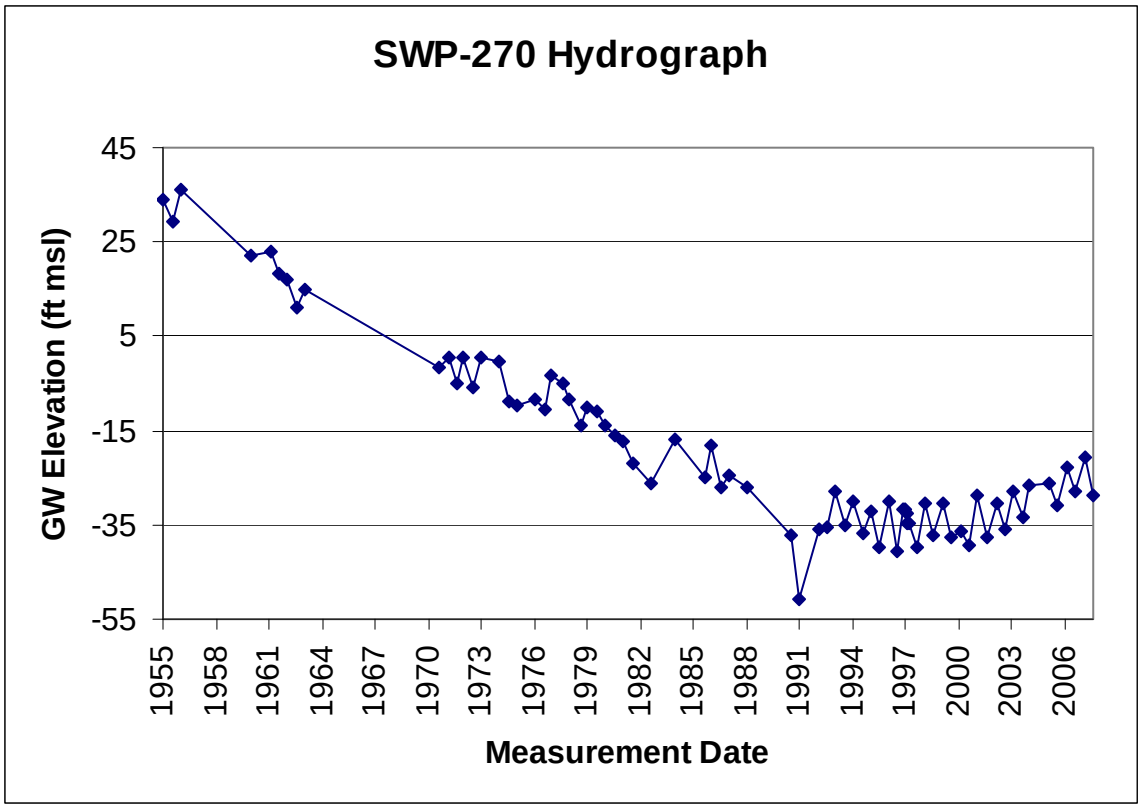

Figure 7. Single Long-Term Hydrograph in the SGA Area

2.2.1 Water Rights/Contract Entitlements

The following section provides information on water rights and contract entitlements on the American and Sacramento rivers within the SGA area.

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). These are described as follows:

- 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's (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 their Northridge service area; (4) SCWA, Arden Park Vista service area; (5) Golden State Water Company (GSWC), 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 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.

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 American River 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

Surface water quality 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. 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

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[12]. 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 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[13] for water supply; therefore this is groundwater under the direct influence of surface water and is subject to the Environmental Protection Agency's (USEPA's) Surface Water Treatment Rule. 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 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 American River POU on a wholesale basis. Water diverted at the plant undergoes conventional

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

[13] Ranney collectors capture water through a series of perforated pipelines that are drilled horizontally under (or near) a river from a large well or caisson ranging 12 to 16 feet in diameter where the water is pumped for use as a water supply.

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

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 *Cryptosporidium* 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. 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, the opportunities for using recycled water north of the American River are limited. In Sacramento County, the most probable recycled water opportunity exists at the Sacramento Regional County Sanitation District's Wastewater Treatment Plant (Sac Regional) located in South Sacramento with a treated water effluent discharge 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 recycled water program might include the scalping of wastewater flows north of the American River for treatment at satellite tertiary plants.

2.4 EXISTING FACILITIES AND OPERATIONS FOR MUNICIPAL AND INDUSTRIAL SUPPLIES

The SGA member agencies own, operate, and maintain numerous raw and treated water facilities to improve and sustain the delivery of drinking water to existing and future customers. Many of these facilities have a direct impact on the South Area Basin and are of interest to SGA in the implementation of its actions.

2.4.1 Major Infrastructure

For the purposes of this GMP, only the major surface water supply diversion facilities and groundwater supply facilities are described.

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**). The combined treatment capacity of these facilities is approximately 502 million gallons per day (MGD).

2.4.1.2 Groundwater Supply Facilities

The water purveyors within the SGA boundaries operate 209 groundwater wells (see Error! Reference source not found.) on an active or standby status as of late 2006. Most production capacities are in the range of 330 to 2,250 gallons per minute (gpm).

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**
Lower American River	
Bajamont WTP (CWD)	**22**
E.A. Fairbairn WTP (Sacramento)	**200**
Sacramento River	
Sacramento River WTP (Sacramento)	**160**

Table 3. Groundwater Wells within SGA Boundaries

Water Purveyor/Agency	Number of Active or Standby Groundwater Wells
Cal Am	42
CWD	5
CHWD	3
City of Folsom	0
City of Sacramento	31
DPMWD	8
FOWD	7
GSWC	6
NCMWC	0
OVWC	2
RLECWD	11
Sac Suburban	
Arcade Service Area	57
Northridge Service Area	26
SCWA	11
SJWD	0
Individual representatives from agriculture and self-supplied groundwater users (principally parks and recreation districts)	-- [1]

Source: DMS, Data Current as of 2006

NOTES:
[1] SGA does not have information on these wells.

2.4.2 Operations

Recent (2000 through 2007) surface water and groundwater use within the SGA boundaries are shown in **Table 4**. **Table 4** shows that the water supplies of the individual purveyors ranges from all surface water to all groundwater, with many purveyors having access to both sources. The aggregate of these purveyors' supplies results in about a 50/50 blend of surface water and groundwater for municipal uses.

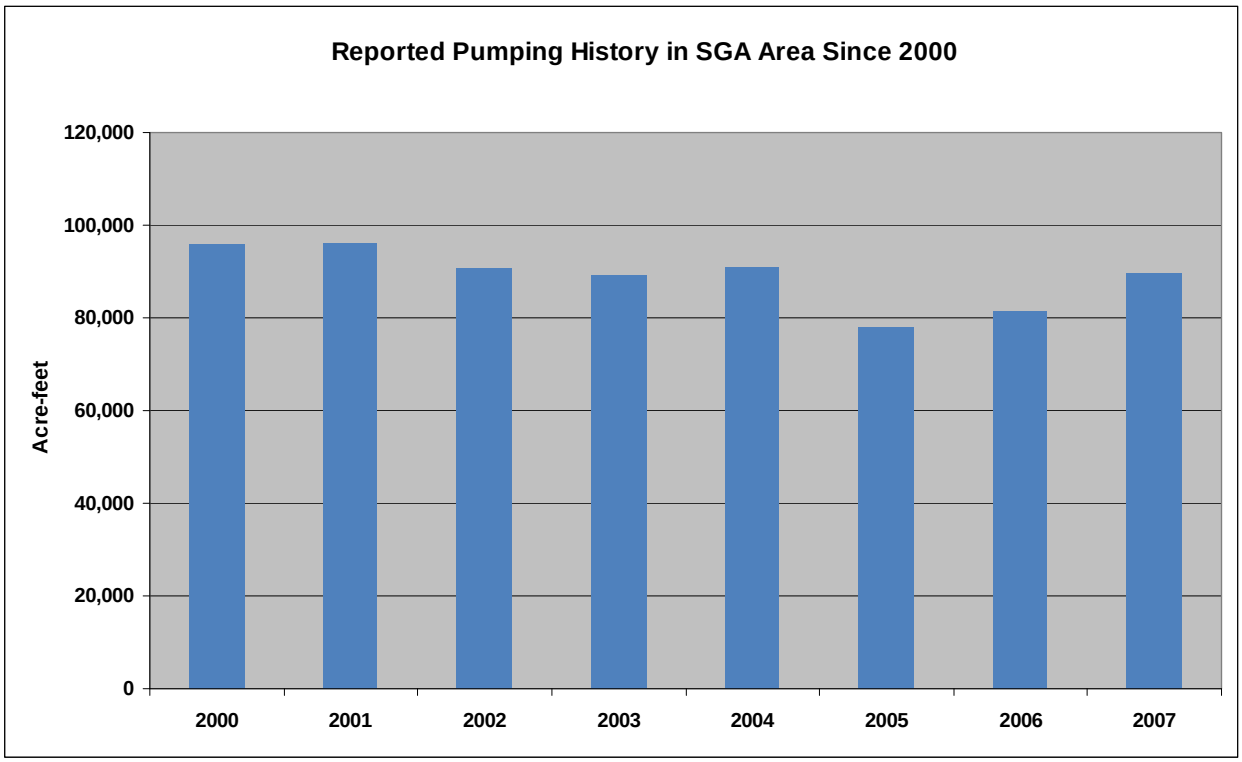

Figure 8. Total SGA Annual Groundwater Extraction in North Area Basin

The total groundwater extraction by SGA member agencies from 2000 through 2007 is summarized in **Figure 8** above. Over the period of record from 2000 to 2007, **Figure 8** shows groundwater extraction decreased as additional surface water supplies were used under conjunctive use operations implemented in the basin following the Water Forum Agreement in 2000. Groundwater use by public water suppliers dipped below 80,000 acre-feet in 2005 and increased slightly in 2006. Previously, reported groundwater use by public water suppliers had not been below 80,000 acre-feet since 1989. In 2007, groundwater extraction increased to over 89,000 acre-feet. This was expected because additional surface water was not available under the dry 2007 conditions. This shift in supply demonstrates successful implementation of a conjunctive use program in the basin.

Table 4. SGA Total Municipal and Industrial Water Deliveries in the SGA Area
2003-2007 (Calendar Years)

WATER PURVEYOR	YEAR	Surface Water (AF/year)	Ground Water (AF/year)	Total Water Deliveries (AF/year)
California American Water	2007	384	17,669	18,053
`	2006	1,024	17,973	18,997
	2005	0	17,968	17,968
	2004	0	19,784	19,784
	2003	0	19,240	19,240
Carmichael Water District	2007	9,509	2,868	12,377
	2006	8,971	3,519	12,490
	2005	9,722	2,347	12,069
	2004	9,843	3,836	13,679
	2003	9,358	3,265	12,623
Citrus Heights Water District	2007	16,237	98	16,335
	2006	18,736	100	18,836
	2005	18,994	100	19,094
	2004	19,753	1,347	21,100
	2003	17,938	573	18,511
Del Paso Manor Water District	2007	0	1,638	1,638
	2006	0	1,654	1,654
	2005	0	1,657	1,657
	2004	0	1,747	1,747
	2003	0	1,477	1,477
Fair Oaks Water District	2007	11,533	899	12,432
	2006	11,178	845	12,023
	2005	12,282	172	12,454
	2004	13,629	312	13,941
	2003	12,333	240	12,573
Folsom, City of	2007	1,820	0	1,820
	2006	1,695	0	1,695
	2005	1,561	0	1,561
	2004	1,415	0	1,415
	2003	1,107	0	1,107
Golden State Water Company	2007	0	1,252	1,252
	2006	0	1,296	1,296
	2005	0	1,248	1,248
	2004	0	1,372	1,372
	2003	0	1,311	1,311
Orange Vale Water Company	2007	4,452	0	4,452
	2006	3,642	0	3,642
	2005	3,376	0	3,376
	2004	4,165	0	4,165
	2003	3,816	0	3,816

Table 4. SGA Total Municipal and Industrial Water Deliveries in the SGA Area (Continued)
2003-2007 (Calendar Years)

WATER PURVEYOR	YEAR	Surface Water (AF/year)	Ground Water (AF/year)	Total Water Deliveries (AF/year)
Rio Linda/Elverta CWD	2007	109	3,305	3,414
	2006	0	3,378	3,378
	2005	0	3,209	3,209
	2004	0	3,407	3,407
	2003	0	3,163	3,163
Sacramento, City of	2007	25,431	18,618	44,049
	2006	22,560	20,917	43,477
	2005	25,213	19,415	44,628
	2004	42,804	20,339	63,143
	2003	31,594	22,621	54,215
Sacramento, County of	2007	0	5,353	5,353
	2006	0	5,133	5,133
	2005	0	5,111	5,111
	2004	0	5,691	5,691
	2003	0	5,034	5,034
Sacramento Suburban WD	2007	7,544	37,932	45,476
	2006	13,345	26,559	39,904
	2005	14,364	26,830	41,194
	2004	15,338	33,261	48,599
	2003	15,214	32,494	47,708
San Juan Water District	2007	4,213	0	4,213
	2006	4,038	0	4,038
	2005	3,839	0	3,839
	2004	4,379	0	4,379
	2003	4,261	0	4,261
Total for SGA Area	2007	81,232	89,632	170,864
	2006	84,165	81,374	165,539
	2005	89,351	78,057	167,408
	2004	111,326	91,096	202,422
	2003	95,621	89,418	185,039

Notes: This data does not include agricultural surface water supplies delivered by Natomas Central Mutual Water Company and groundwater extraction by agricultural and self-supplied users. It also does not include surface water supplies for portions of the San Juan Water District and the City of Folsom that are not within the SGA boundaries.

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Section 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 specific actions necessary for meeting the goal and objectives (see **Figure 9**).

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 eight specific basin management objectives (BMOs). These BMOs include the following:

1. **Maintain or improve groundwater quality in the SGA area to ensure sustainable use of the groundwater basin.** 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 provide for sustainable use of the groundwater basin.** 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. The regional use of groundwater has and will continue to result in a persistent cone of depression within the central portion of the North Area Basin. The SGA members have and will continue to implement conjunctive use programs that reduce further declines in the regional cone-of-depression. The SGA members intend that overall groundwater elevations in the basin be improved over time, and that the groundwater basin be managed such that the impacts during drier years will be minimized when surface water supplies are curtailed and are replaced by increased groundwater supplies.

3. **Protect against 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 extractions in the SGA portion of the groundwater 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.

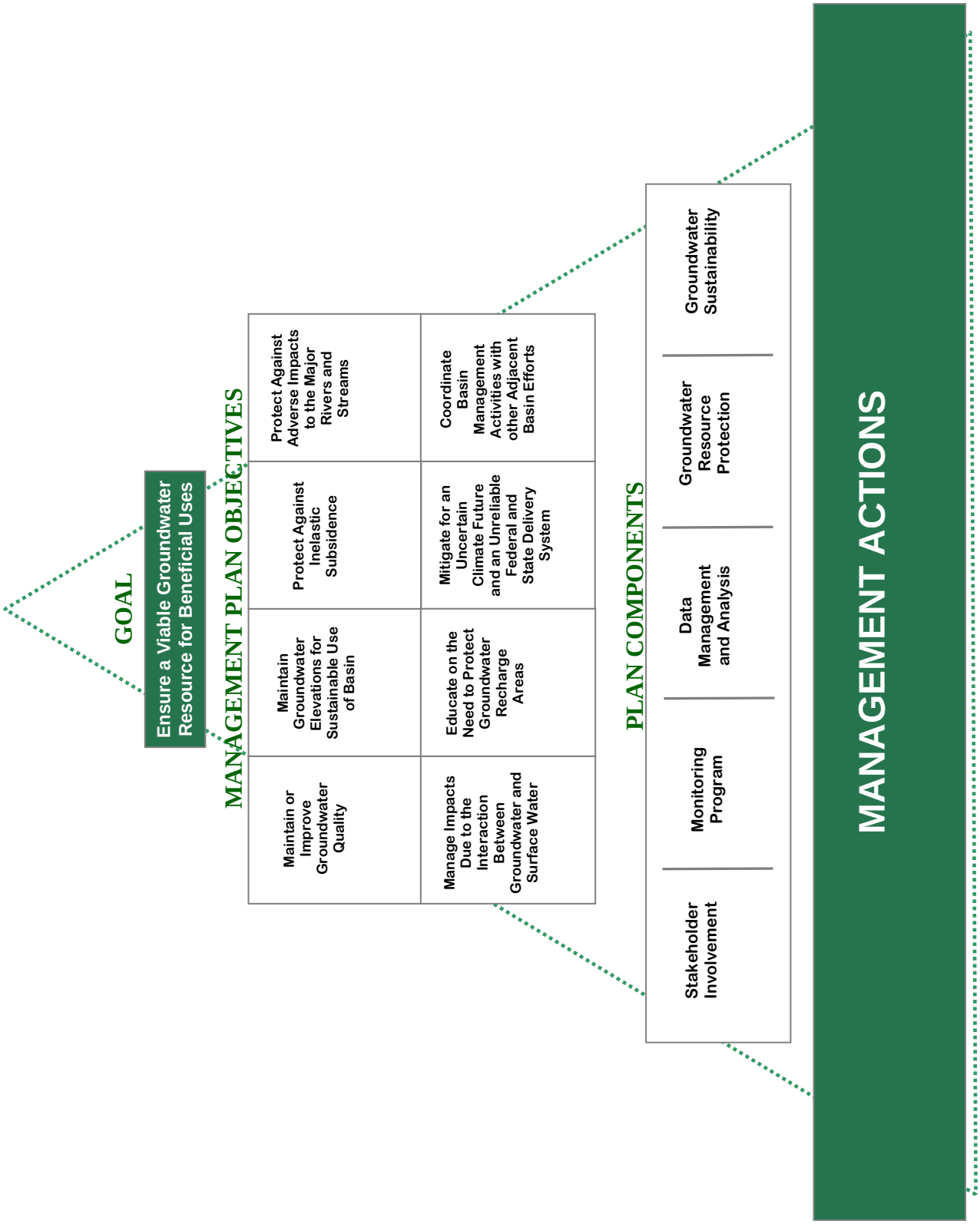

Figure 9. Organization of Management Plan Elements

4. **Manage groundwater to protect against adverse impacts to surface water flows in the American River, the Sacramento River, and other surface water bodies within the SGA area.** Among other important uses, the American and Sacramento rivers and their tributaries 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 and to not exceed agreed upon groundwater extractions of 131,000 AF/year on average.

5. **Protect against adverse impacts to surface or groundwater quality resulting from interaction between groundwater in the basin and surface water flows in the American River, the Sacramento River, and other surface water bodies within the SGA area.** Surface water is a primary recharge source for groundwater in the SGA portion of the regional groundwater basin. The interaction of the two water supplies is well documented and the impacts of management actions from one supply could be detrimental to the other. Because the natural flow regime is such that groundwater is not discharging to either of the major rivers or local stream systems in the SGA area, surface water quality is not impacted by the difference in water quality constituents typically found in the region's groundwater supplies. While it is possible that future SGA management actions could temporarily alter that condition, it is the SGA's intent that operation of the groundwater system will not negatively impact the water quality of the area's rivers and local streams.

6. **Educate on the need to achieve recharge to the aquifer of appropriate quality and quantity to ensure basin sustainability.** There is an important link between activities that take place on the overlying surface of the groundwater basin and the effects that these uses have on the quality and quantity of natural recharge to the aquifer. Implementation of this objective will likely be through programs that educate on the need to protect groundwater recharge areas and pay attention to practices that either impede (e.g., large pavement areas) or could pollute (e.g., proper oil disposal) water as it makes its way from the surface to the aquifer.

7. **Maintain a sustainable groundwater basin to help mitigate potential water supply impacts resulting from an uncertain climate future and an increasingly unreliable state and federal water delivery system.** Through local and statewide water planning efforts, there is an ever increasing need of placing value on groundwater as a buffer against predicted prolonged droughts. These planning efforts could call for increased conjunctive use beyond that considered under the WFA. This emphasizes the need to continue to plan for surface water in areas where use of groundwater is currently the sole source of water supply.

8. **Maintain a sustainable groundwater basin underlying the SGA area through coordination and collaboration with adjacent groundwater basin management efforts.** The SGA acknowledges that management of their portion of the groundwater basin influences, and is influenced by, the adjacent groundwater subbasins and the larger Central Valley groundwater basin. The SGA's primary delineation by county, city and water provider service boundaries does not account for the interrelationship amongst the

neighboring groundwater basins. As a result, the SGA will continue to seek coordination and collaboration with neighboring groundwater basin management programs.

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 SGA has initiated based on the needs of its members and their respective water service area customers. These components can be grouped into five general categories: (1) stakeholder involvement, (2) monitoring program, (3) data management and analysis, (4) groundwater resource protection, and (5) groundwater sustainability. 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. As this GMP is a comprehensive update of SGA's GMP adopted in 2003, many of the actions have changed to reflect recent conditions. A complete listing of the original 2003 action items and their status is included in **Appendix B.**

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 or under drought conditions. To address the needs of all of these stakeholders, the SGA has pursued several means of achieving broader involvement in the management of the SGA groundwater basin. These include: (1) involving members of the public, (2) involving other local agencies and groundwater management groups 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 key partnerships to achieve local water 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 ongoing implementation of its GMP. Creation of SGA was accomplished through a Joint Powers Authority signed by the cities of Citrus Heights, Folsom, and Sacramento and the County of Sacramento. The four 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.

The original 2003 GMP had, as one of its goals, an update of the GMP every five years due to the constantly changing landscape for water supply and groundwater management in the State of California. In the preparation of this, the 2008 GMP, the SGA has filed two separate notices in the Sacramento Bee (**Appendix C**). In accordance with CWC § 10753.2, a notice of intent to prepare a GMP was published for the August 14, 2008 SGA Board Meeting inviting the public to attend. A second notice was published inviting the public for the adoption of the resolution to adopt the 2008 GMP at the December 11, 2008 SGA Board meeting.

Over the past five years, the SGA has demonstrated its commitment to outreach and education. In November 2003, the SGA launched a Web site (www.sgah2o.org) that has and will continue to be an effective means for public education on the status of SGA actions and its successes, and serves as a repository for downloading of all scanned public documents. The SGA will continue to 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. Provide briefings, copies of Basin Management Reports, and a written annual summary to the Water Forum Successor Effort on GMP implementation progress.
3. Provide a written annual summary on GMP implementation progress to JPA signatories.
4. Work with SGA 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 participate in the development and implementation of this GMP. **Figure 1** shows the SGA purveyors and some of the key adjacent entities that SGA has coordinated with during implementation 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 regularly met to discuss issues related to groundwater management and remediation efforts at the former McClellan AFB, and have integrated some of the monitoring wells at McClellan AFB into the SGA Biennial Management Report.

Other users in the basin not noted on **Figure 1** include agriculture and other self-supplied groundwater producers. The SGA will outreach to these groups as needs arise.

As noted in **Figure 1** 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.

In 2000, NCMWC prepared a GMP for its service area in both Sacramento and Sutter counties (Luhdorff & Scalmanini Consulting Engineers (LSCE, 2002). That GMP continues to apply to NCMWC's service area, and it is currently being updated. While the SGA GMP is intended to benefit all users within the basin, the primary focus of SGA's management efforts to date have been on municipal and industrial uses in the central portion of the basin where a persistent cone of depression and extensive groundwater contamination have existed for many years. In the western portion of the SGA area (see **Figure 1**), a large number of agricultural operations exist within and adjacent to the NCMWC service area. This primarily agricultural area has not historically experienced significant concerns with respect to groundwater conditions. SGA and NCMWC are coordinating on management issues in this portion of the basin to ensure that groundwater management needs are met throughout the North Area Basin.

In Placer County, the SGA is closely connected to groundwater management activities through the RWA. In November 2007, the City of Roseville, the City of Lincoln, Placer County Water Agency (PCWA), and California American Water (Cal AM) cooperatively developed the Western Placer County Groundwater Management Plan (WPCGMP). The SGA GMP and WPCGMP are separate and apart based on their respective overlying regions, yet both share the same groundwater basin. SGA has participated in WPCGMP development meetings and have briefed staff responsible for the WPCGMP implementation on groundwater management activities taking place as part of the SGA GMP. The WPCGMP is currently in the data collection phase with groundwater basin characterization being the next phase prior to the implementation and management phase of their GMP.

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 has provided briefings to the South Sutter General Manager on its GMP implementation efforts. Finally, the SGA appointed a representative from Sutter County Department of Public Works as a member of the SGA GMP Technical Review Committee during development of the original 2003 GMP. Sutter County is currently in the process of developing an updated GMP, and is coordinating with SGA during its development.

In addition to involving other agencies within the North American Subbasin, the SGA also attends public meetings and briefs representatives of Yolo County (representing the Yolo Subbasin) to the west, the Sacramento Central Groundwater Authority for the portion of Sacramento County's aquifer that lies between the American and Cosumnes rivers, and the current stakeholder effort currently developing a South Sacramento GMP for the portion of the Sacramento County groundwater basin between the Cosumnes River and South Dry Creek (i.e., southern boundary of Sacramento County).

Actions. The SGA will take the following actions:

1. To the extent practicable attend regular meetings of the Sacramento Central Groundwater Authority and the Western Placer GMP group and notify them of SGA Board meetings.
2. Provide copies of the adopted GMP and subsequent Biennial Basin Management Reports to representatives from the Western Placer, Sutter County, and Yolo County management groups as well as the Sacramento Central Groundwater Authority and the on-going stakeholder efforts taking place in South Sacramento County.

3. Meet with representatives from the Western Placer, Sutter County, and Yolo County management groups, as well as the Sacramento Central Groundwater Authority and the on-going stakeholder efforts taking place in South Sacramento County, as needed.

4. Coordinate with the Western Placer management group, and the Sacramento Central Groundwater Authority to develop a common data platform and share groundwater-related data to the greatest extent practicable to help ensure the mutual sustainability of our common groundwater resources.

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 original 2003 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.

The updated 2008 GMP utilized the existing GMP Implementation Committee comprised of Board appointed members of SGA to provide oversight in revising objectives and action items. The product of this effort was approved by the SGA Board of Directors at their December 11, 2008 Board Hearing.

Actions. The SGA will take the following action:

1. The GMP Implementation Committee will meet at least annually to review and guide implementation of the plan. Ad-hoc use of Technical Review Committees will take place, as needed.

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.

One issue of particular importance to SGA is the presence of groundwater contamination plumes (**Figure 4**) associated primarily with federal defense-related activities. This contamination is known to limit local water purveyors' access to a significant portion of high-quality groundwater in the basin. Ultimately, this could leave surface water as the best replacement alternative, which in turn would threaten the region's ability to implement the WFA.

In February 2004, SGA learned that N-nitrosodimethylamine (NDMA) associated with a contaminant plume from the Aerojet facility near Rancho Cordova had been detected in a monitoring well within Carmichael Water District (CWD). In late June 2004, SGA representatives joined forces with the Water Forum to establish what is now known as the Regional Contamination Issues Committee (RCIC) in recognition of the Water Forum's stake in addressing regional groundwater contamination issues.

The RCIC is a forum for water purveyors, regulators and responsible parties to raise issues and discuss solutions for dealing with groundwater contamination issues that impact the region. SGA and local water purveyors have also briefed members of Congress and their staff on regional groundwater contamination issues associated with federal defense-related activities. SGA has

continued to request funding from the Department of Defense and the USEPA to support studies and other activities to protect the region's groundwater resources.

The SGA has also been working with the Sacramento Area Flood Control Agency (SAFCA) and United States Army Corps of Engineers (USACE) in understanding the effects on groundwater of placing deep slurry walls to strengthen existing levees in Sacramento County along the Sacramento and American rivers. As a result of SGA comments, groundwater experts have been called upon by SAFCA to better understand and quantify the potential loss in natural recharge that may result from the placement of impervious barriers along these two natural recharge sources.

The SGA also coordinates and develops working relationships with other local, state, and federal regulatory agencies (e.g., SAFCA, Sacramento County, California Department of Public Health, USEPA, USACE, 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 two decades, 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 water 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 IRWMP participating 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 regional-based IRWMP, 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, and the change in water use would require agreement from the Water Forum Successor Effort. 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 and work alongside the Water Forum Successor Effort to achieve both local supply reliability and 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 inelastic land surface subsidence resulting from groundwater extraction, and continuing to improve our understanding of the relationship between surface water and groundwater along the American and Sacramento rivers. Also important is the continued use of monitoring protocols to ensure the accuracy and consistency of data collected.

3.5.1 Groundwater Elevation Monitoring

The SGA has compiled historic water level data measurements extending from prior to 1950 through 2008. Sources of historic water level data for the SGA area include:

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

DWR has maintained a multi-agency program of measuring more than 30 wells in the SGA portion of the groundwater basin. 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 working to continue the use of a standardized network of wells that combines those already monitored through the DWR program 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 with a minimum of two measurements a year to represent spring and fall conditions. **Figure 10** shows the existing and proposed wells for this network as of 2008.

The wells have been 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[14]. 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.

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

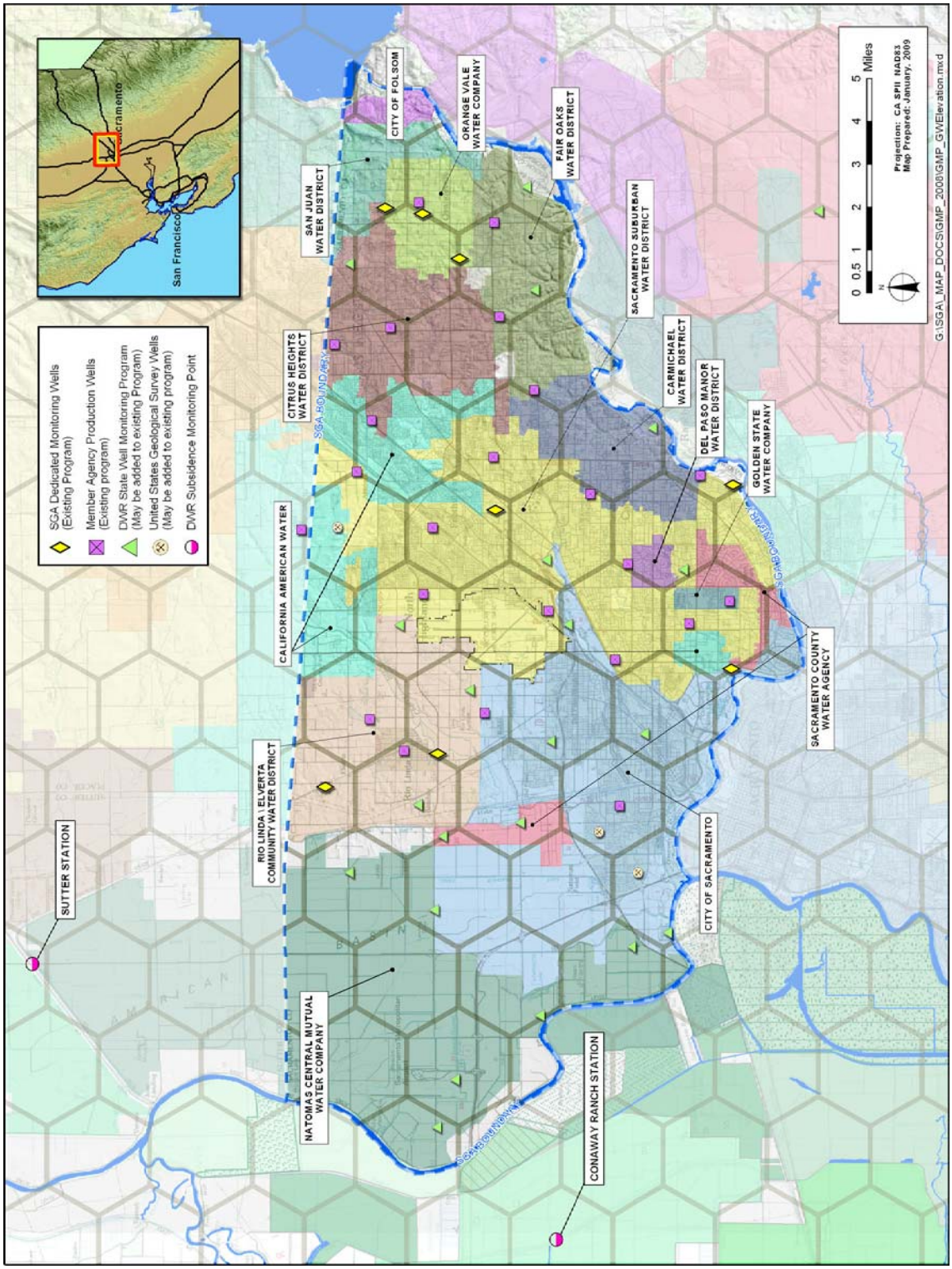

Figure 10. Existing and Proposed Wells for SGA's Groundwater Elevation Monitoring Network

The resulting grid, shown on **Figure 10,** includes 44 polygons of roughly equal area of about five square miles each. The member agency monitoring wells has been 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 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 typically non-producing wells, so water level readings represent relatively static levels. Wells were screened further based on having a well completion report that identifies the depth and, if available, the well screen elevations. Additional screening is taking place on a continuous basis to insure that measurements are true indicators of the regional groundwater elevations (e.g., older wells that have historically used oils to lubricate the pump and drive assembly create a false reading unless adjustments in depth to water are made based on the depth of oil in the well column. The oil stands on top of fresh water and can accumulate to as much as 10 feet or more.)
- 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 where standard protocols are followed.
- 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 to collect data from a group of representative wells for monitoring spring and fall groundwater elevation measurements.
2. Coordinate with DWR and other well monitoring program partners, including SGA members, to ensure that the selected wells are maintained as part of a long-term monitoring network.
3. Coordinate with partners and request that the timing of water level data collection occur on or about April 15 and October 15 of each year.
4. Coordinate with partner 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. Maintain the existing SGA monitoring well network for purposes of groundwater elevation monitoring.
7. Provide a biennial assessment of groundwater elevation trends and conditions to SGA's member agencies, the Water Forum Successor Effort, and adjoining groundwater authorities.
8. Assess the adequacy of the groundwater elevation monitoring well network biennially.

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 the

California Department of Public Health (DPH) under Title 22. Sources of water quality data include:

- SGA Member Agencies
- DWR
- 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 is also 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 installed a series of monitoring wells in the basin through a Local Groundwater Assistance Grant from DWR (see **Figure 11**). Additionally, SGA has incorporated water quality data from wells in with the USGS NAWQA program and worked 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.

Figure 11 shows the existing SGA member agency production wells. Title 22 water quality reporting is required by DPH for each of these public drinking water supplies. The SGA's water quality monitoring network also includes these wells. The water quality monitoring well network will continue to be expanded to include additional DWR, USGS, McClellan, Aerojet, CVRWQCB, and privately owned wells are opportunities arise.

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. Maintain the existing SGA monitoring well network for purposes of groundwater quality monitoring.
3. Coordinate with the USGS to continue to obtain water quality data from NAWQA wells.
4. 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.
5. Assess the adequacy of the groundwater quality monitoring well network in the Biennial Basin Management Report.

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.

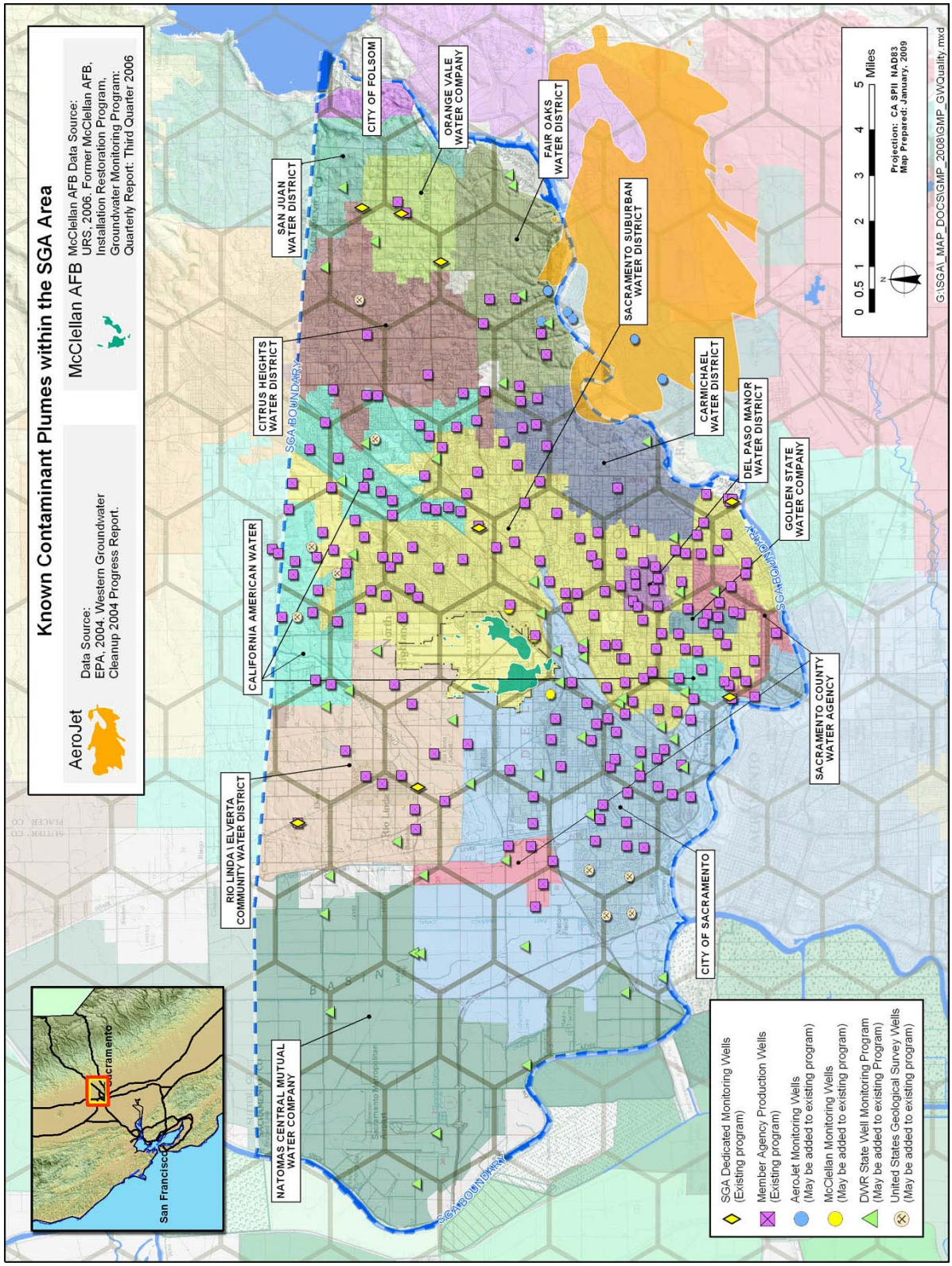

Figure 11. Existing and Proposed Wells in SGA's Groundwater Quality Monitoring Network

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 from compaction of water-bearing deposits caused by the removal of groundwater is known to have occurred west of the Sacramento River[15], the extent of subsidence east of the Sacramento River has been minimal.

DWR maintains two subsidence monitoring stations near the North Area Basin (see **Figure 10**). The Sutter Station is located just north of the SGA area, where State Highway 99 crosses the Natomas Cross-Canal. Total subsidence at the Sutter Station from spring 1995 to spring 2003 has been 0.026 feet (0.312 inch)[16]. Total subsidence at the Conaway Ranch Station, located west of the SGA area, from spring 1992 to spring 2003 has been 0.044 feet (0.526 inch)[17].

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 benchmarks located approximately two miles northeast of the former McClellan AFB, and approximately one mile northeast of the intersection of Greenback Lane and Elkhorn Boulevard.

Another land subsidence evaluation was performed in the Arden-Arcade area[18] 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[19] 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).

[15] 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)

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

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

[18] 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.

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

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.

In an effort to further the monitor land subsidence, SGA surveyed elevations of its monitoring well network and is coordinating with SSWD to monitor surveys of benchmarks established at SSWD monitoring wells..

Actions. The SGA will continue to monitor land subsidence and pursue additional possible actions, if necessary. These will include:

1. Re-survey the elevations established at SGA monitoring wells.
2. Coordinate with other agencies, particularly the City and County of Sacramento, the NGS, and SAFCA to determine if there are other available data in the SGA area to aid in the analysis of potential land surface subsidence.

3.5.4 Surface Water Groundwater Interaction Monitoring

The interaction between groundwater and surface water continues to be evaluated within the region. The SGA has and will continue to pursue activities in support of a better understanding on how these two water supplies are related. SGA is currently aware of the following:

- A 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 the river could be either a losing or a gaining reach. Beyond 6,000 feet downstream 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.
- Updated higher resolution groundwater models have been developed over the past five years (See **Section 3.6.1**) and are now being used to estimate flow volumes between surface water and groundwater for various hydrologic conditions.

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

1. 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.
2. 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. Also use this same data to calibrate groundwater models that simulate this interaction.
3. 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.
4. Coordinate with CSUS to analyze data obtained from monitoring wells on the CSUS campus to better understand the relationship between the groundwater basin and surface water flows at that location.
5. Coordinate with the Corps of Engineers and SAFCA to review projects that could potentially impact recharge from rivers to the underlying groundwater basin.

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 DPH 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.

3.6 COMPONENT CATEGORY 3: DATA MANAGEMENT AND ANALYSIS

This category will ensure that SGA maintains a centralized database of well status and construction information, groundwater quality and elevation data, and known groundwater contamination sites for application in annual reporting and use in technically appropriate model(s) for analyzing basin management activities. Three activities are taking place on a continuous basis to insure that the SGA is using current data that is screened for its quality and use in portraying the data in the biennial Basin Management Report.

3.6.1 SGA Groundwater Model

In September 2007, an update to the Integrated Groundwater and Surface Water Model (IGSM) application for the North Area Basin was successfully completed. The previous IGSM application was developed in the mid-1990s. Since that time, several improvements were made to the programming to warrant an update of the model datasets. In particular, the model is now capable of simulating daily surface water flows, which could greatly improve simulation of the interaction between groundwater and surface water systems. Additionally, improvements have been made to the algorithm that calculates the surface water/groundwater interaction. Finally, improvements to desktop computer processor speeds enable a much greater number of calculations to be made in shorter time periods. This in turn enables more model nodes, resulting in a more refined model grid and more detailed simulations in areas of particular interest.

Half of the update was funded through a $250,000 grant from the Department of Water Resources' Local Groundwater Assistance Program (AB 303) to SGA. The remaining half of the update was funded through a partnership between the Regional Water Authority (RWA), the U.S. Army Corps of Engineers, and a Proposition 50 planning grant from DWR.

The model improvements included: 1) updating the hydrology for the calibration period (1970 through 2004) from monthly to daily; 2) refining the model grid to improve the model simulation, particularly along stream nodes where recharge to the aquifer system may be

occurring; 3) identifying additional monitoring wells to increase the number of groundwater elevation measurements used in calibrating aquifer hydrogeologic parameters; and 4) developing baseline models of existing and future conditions to evaluate potential impacts of various conjunctive use scenarios.

Actions. The SGA will utilize the existing SGA IGSM application and, if necessary, other groundwater model(s) through education, improvements and continuous calibration. To achieve this, the SGA will take the following actions:

1. Assemble a committee to review the current functionality of the SGA IGSM application and to discuss the pros and cons of the existing modeling tool and other tools (e.g., IWFM or MODLFOW) that may be available for longer-term modeling needs.
2. Canvas the membership annually to determine if they have any upcoming modeling needs.
3. Work with modeling support consultant(s) to identify tools (pre- and post-processing) that can make the model more efficient to operate and to create graphics that help better present modeling results.

3.6.2 Comprehensive Data Analysis

The SGA has and will continue to update the member agencies and public at-large on the current state of the SGA portion of the groundwater basin through Biennial Basin Management Reports. The SGA has produced a 2004/05 and a 2006/07 report currently available for download on the SGA website (http://www.sgah2o.org)

Actions. The SGA will continue biennial reporting on the basin management activities and will work with member agencies to improve reporting, if necessary.

1. Prepare the biennial Basin Management Report to assess basin conditions in even numbered years.
2. Prior to preparation of the 2010 version of the Basin Management Report, review the content of the report with the GMP Implementation Committee to ensure the content of the report is addressing the needs of the SGA members.
3. If requested, conduct more focused analyses on issues of concern to SGA members (e.g., cluster of contamination emerging or declining water elevations in a particular part of the basin).

3.6.3 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 its groundwater resource, it is 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 includes both the population of a database and the development of a user interface to easily access the database. Phase I of the DMS development 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 fully populated the database and added further customization of the user interface with additional analysis features. The input of new data has taken place with each biennial Basin Management

Report. Quality-control measures are also implemented to remove questionable data and to verify the quality and completeness of new data.

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

The DMS allows for the viewing of regional trends in water level and water quality not previously available to the SGA (see **Figure 12** 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. Some additional features include the ability to view cross-sectional data using well lithology data across the groundwater basin, and the ability to incorporate groundwater model calibration results and compare the results with actual monitored groundwater elevation data.

Presentation of groundwater elevation data and groundwater quality data in these ways are 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 biennial update to Basin Management Report (see **Section 3.6.2**).

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

1. Continue to update the SGA database with current water purveyor data.
2. Make recommendations to the DMS developer on utilities to add to the DMS to increase its functionality.
3. Review the current database and recommend actions to increase the accuracy and efficiency of the SGA database.
4. Work with adjacent groundwater authorities on shared data protocols to achieve the highest level of confidence in the comprehensive data analysis.

3.7 COMPONENT CATEGORY 4: 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.

3.7.1 Well Construction Policies

The Sacramento County EMD administers the well permitting program for Sacramento County. The standards for construction are identified in Sacramento County Code, Chapter 6.28 (Sacramento County Ordinance No. 1246) as amended on July 22, 2003. In addition to general well construction standards, Sacramento County receives and scans all well completion reports for wells constructed in Sacramento County.

The Sacramento EMD maintains 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 Sacramento County 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.

3.7.2 Well Abandonment and Well Destruction Policies

The Sacramento EMD also administers the well destruction program for Sacramento County. While in its very early stages, the Sacramento County EMD is overseeing and participating in a "Special Environmental Project" (SEP) as part of an EMD enforcement action settlement that resulted in funding for the identification of an estimated 1,000 abandoned supply wells in Sacramento County. The goal is to locate abandoned wells, collect GPS coordinates for the wells, and get the wells properly destroyed, with or without financial assistance from our SEP funding source.

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. The actions

listed below will further 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. Coordinate with the Sacramento County EMD to identify ways to ensure that wells in the SGA area are properly abandoned or destroyed.

3.7.3 Wellhead Protection Measures

Identification of wellhead protection areas is a component of the Drinking Water Source Assessment and Protection (DWSAP) Program administered by the DPH. The DPH 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 DPH:

- 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.

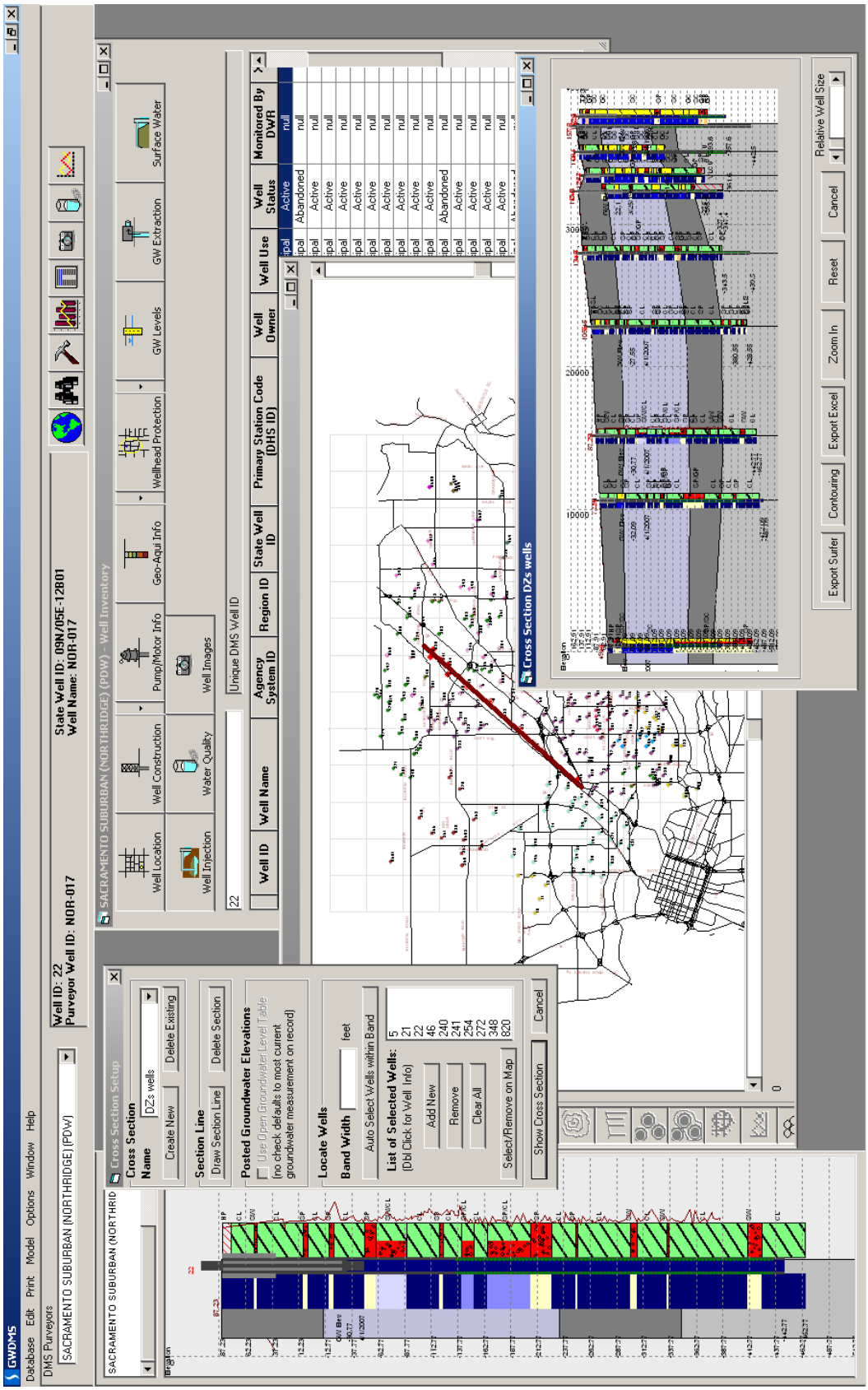

Figure 12. DMS Screen Capture

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. Obtain an updated coverage of potentially contaminating activities and provide to member agencies for their use in protecting existing wells and in siting future wells.
2. Canvas the SGA membership for current wellhead protection measures and provide a summary of actions taken by others as a tool in managing their individual wellhead protection programs.

3.7.4 Protection of Recharge Areas

The SGA recognizes the important link between activities that take place on the surface and the potential impact of these activities on the quality and quantity of groundwater recharge. Implementation for the protection of groundwater recharge areas starts with educational programs directed at groundwater and land use authorities that emphasize the need to protect groundwater recharge areas and pay special attention to overlying land use practices that either impede (e.g., large pavement areas) or could pollute (e.g., proper oil disposal) water as it makes its way from the surface to the aquifer.

In the past, the SGA has evaluated surface geology through a limited desktop study to identify and delineate areas of potentially high recharge rates. Surface geology and qualitative estimates of relative recharge rates are shown on **Figure 13**. The SGA recognizes the importance of more accurately identifying recharge areas not only within the SGA area but within adjacent groundwater subbasins in consultation with adjacent groundwater management agencies.

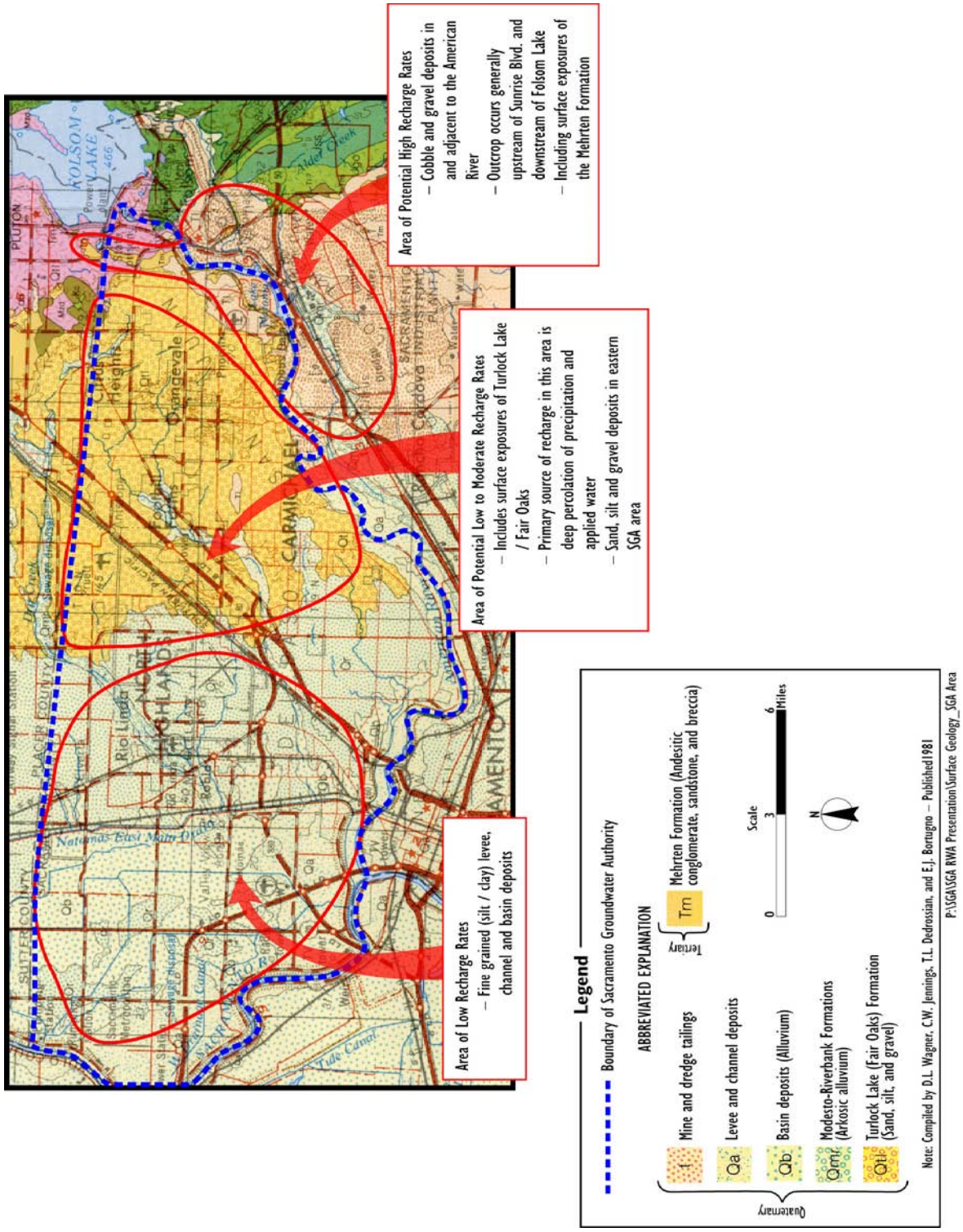

Figure 13. Surface Geology of the SGA Area – Implications for Surface Recharge Rates

Actions. The SGA will take the following action:

1. Quantify, using the existing numerical SGA groundwater model, the potential surface recharge over the SGA area.
2. Compare modeling results with existing geologic maps to develop a map of areas that are potentially contributing significant recharge in the basin.
3. Communicate with adjacent groundwater authorities and land-use planners to emphasize the need to protect prominent groundwater recharge areas and pursue mutual joint efforts in pursuing grants for the purpose of understanding the value and need for protecting undeveloped groundwater recharge areas.

3.7.5 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 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 the coverage of known LUSTs within the basin. This information is maintained by the SWRCB and CVRWQCB.

As detailed in **Section 3.4.4,** SGA's water quality committee joined forces with the Water Forum to establish what is now known as the Regional Contamination Issues Committee (RCIC). The RCIC is a forum for water purveyors, regulators and responsible parties to raise issues and discuss solutions for dealing with groundwater contamination issues that impact the region. Also, the SGA has been in communication with the AFRPA, which is overseeing remediation efforts at McClellan (see **Section 3.4.2**).

Actions. The SGA will take the following actions:

1. Continue facilitation of the Regional Contamination Issues Committee to coordinate the efforts of regulators, responsible parties, and water purveyors to expedite the cleanup of contamination in the basin.
2. Coordinate with known responsible parties to develop a network of monitoring wells to act as an early warning system for public supply wells.
3. 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 the directional flow of groundwater.
4. 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 and monitoring wells.

3.7.6 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. As noted in **Section 2.1.1** and illustrated in **Figure 3,** the North Area Basin has a minimum depth of fresh water 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 SGA member agencies generally extract groundwater from depths of less than 500 feet, so their extractions are 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. Observe TDS concentrations in public supply wells that are routinely sampled under the DPH Title 22 Program. These data will be readily available in the SGA's DMS and are already an on-going task for the biennial assessment of basin conditions.
2. Inform all member water purveyor managers of the presence of the saline water interface in the deep Mehrten formation 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 Sacramento County 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.

3.8 COMPONENT CATEGORY 5: GROUNDWATER SUSTAINABILITY

The SGA is committed to continuing its role in supporting regional activities relevant to the long term sustainability of the region's groundwater resources. To ensure a long-term viable supply of groundwater, SGA members are seeking To Whom It May Concern: 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 water 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 water will result in a maintained or improved amount of groundwater in storage in the basin over the long term.

Two primary activities have and will continue to 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 surface 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.

3.8.1 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 (i.e., this is recharge that occurs naturally from rivers, streams, and surface percolation by simply reducing groundwater extractions).

The SGA has also embarked upon a Water Accounting Framework (WAF) to ensure a safe and sustainable water supply for the greater Sacramento region by encouraging water purveyors to "bank" water in the basin, when available, for use during dry periods. This includes the establishment of a WAF that supports groundwater banking programs by setting forth rules for operating a model groundwater bank, and monitoring the basin to ensure its sustainability as the program is implemented.

In June 2007, the SGA Board adopted Phase II of the WAF, which established that SGA would:

1. Maintain the various modeling and management tools needed to assess the results of conjunctive use operations in the basin.

2. Maintain an accounting of groundwater "deposits" and "withdrawals" associated with implementing a conjunctive use program.

3. Communicate with regional stakeholders on the progress of implementing the conjunctive use program.

With the adoption of the Phase II framework, the SGA Board directed staff to conduct a Phase III effort to establish the following:

1. Survey how various water banks operate in the state, and recommend criteria on how local agencies conducting conjunctive use programs could potentially participate in banking and exchange agreements with partners external to the North Area Basin.

2. Recommend monitoring criteria that would allow SGA to assess the long-term sustainability of the groundwater basin as conjunctive use and potential banking programs are operated in the North Area Basin.

Phase III was initially targeted for completion by December 2007. However, a variety of factors caused delays in the completion of this phase. In addition, the USBR and SGA Basin Management Report recently established criteria for participating in a drought water bank accounting for climate change that should be incorporated into a WAF banking and exchange program. SGA staff is reviewing these criteria and expects to complete Phase III of the Framework by mid-2009.

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. aquifer storage and recovery wells or surface spreading facilities, through constructed recharge basins or in river or streambeds).
3. Participate directly with the RWA IRWMP effort and ensure that SGA projects are included in the IRWMP.
4. Implement the SGA Water Accounting Framework to track the level of implementation of an appropriate conjunctive use program for the sustainability of the underlying groundwater basin.
5. Report annually, or as-needed, to the Water Forum Successor Effort on the planning and completion of projects that increase capacity to conjunctively manage the groundwater basin and also report on issues that reduce conjunctive management capacity (e.g., detection of contaminants).
6. Meet with representatives of the upper American River watershed to discuss their recently completed climate change analysis and identify opportunities for incorporating this information into a study for responding to changing future hydrologic conditions.
7. Coordinate with state and federal water agencies to determine if there are any forecasting resources available to give local water suppliers advance warning of expected water supply conditions for the upcoming year.
8. Meet with representatives of the USBR to understand the status of any studies of future climate change impacts and other operational criteria that could impact operations at Folsom Reservoir, which could impact conjunctive use operations.
9. Coordinate with representatives from Sacramento Central Groundwater Authority and existing Placer County and Sutter County groundwater management efforts to communicate expected water elevation changes resulting from conjunctive use in the SGA area and to understand the efforts and expected results of implementing conjunctive use in their respective management areas.

3.8.2 Assess Water Quality Threats to Groundwater Basin Sustainability

While the presence of contaminant plumes and point sources of contamination have been recognized in the basin for some time, no attempt at understanding which contaminants constitute the highest priority threats to a sustainable groundwater supply. To address this, SGA secured a Local Groundwater Assistance Grant from DWR to investigate the various threats and priority them based on the risk they pose to existing groundwater facilities. This study is expected to occur in 2009/2010.

Actions. The SGA will take the following actions:

1. Using the existing SGA IGSM application and the locations of known contaminant plumes in the basin, run modeling scenarios that simulate the current planned conjunctive

use program in the SGA basin to determine the potential future movement of contamination and the potential extent of threatened water supply facilities.

2. Update known potentially contaminating activities and other known point-source contaminants (e.g., leaking underground storage tanks) to determine where significant risks may exist to current or planned water supply facilities.
3. Review potential upcoming regulatory changes to water quality standards that could negatively impact water supply facilities.
4. Following completion of the actions above, recommend follow on studies where areas of significant concern or where data gaps exist.

3.8.3 Potable Supply 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 and remediated 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.

Recycled Water The SRCSD treats wastewater for the entire County of Sacramento at its wastewater treatment plant located near Freeport between Interstate 5 and Franklin Boulevard, and north of Laguna Blvd. Over the past two decades SRCSD has been developing a recycled water program that is intended to grow over the coming years as water quality restrictions of treated water effluent become more constrained. In the late 1990's, in cooperation with SCWA, SRCSD successfully constructed a 4 mgd recycled water treatment plant for commercial/industrial outdoor landscaping in two large development projects (Laguna West and Lakeside) south of the wastewater treatment plant. Looking to further expand their recycled water program, 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 recycle water on a regional scale. SRCSD is currently expanding its recycled water treatment plant to 9 mgd, and has a goal of expanding its recycled water treatment capacity to between 30 and 40 mgd within 20 years.

Remediated Groundwater Both McClellan and Aerojet facilities treat contaminated groundwater to water quality levels that meet their respective National Pollution Discharge Elimination System (NPDES) permits. Currently both clean-up sites extract contaminated groundwater, treat the water, and then discharge the treated water to local streams that eventually flow to the American and Sacramento rivers. Given the high quality of remediated water after treatment, there has been some interest in making use of the water in-basin to avoid eroding of the WFA sustainable groundwater yields both north and south of the American River. This would require infrastructure similar to recycled water where non-potable can be used for outdoor irrigation that may also include residential landscape irrigation.

Actions. The SGA will take the following actions:

1. Coordinate with the RWA and its members that have signed PSAs to the WFA to understand if agreed upon 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 as a non-potable supply for outdoor irrigation providing natural in-lieu recharge to the groundwater basin.
3. Encourage the appropriate application of treated remediated groundwater for beneficial uses to help reduce demands for potable water supply and to prevent the erosion of the sustainable yields of the North and Central Area Basins.

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Section 4 PLAN IMPLEMENTATION

SGA has a well-documented history of implementing GMP elements since its initial GMP adoption in December 2003 (see **Appendix B**). The following table summarizes the revised action items of the updated GMP and a planned implementation schedule. Many of these actions involve communicating and coordinating by SGA with other local, state, and federal agencies. The timeline for beginning implementation of the GMP action items range from already ongoing to up to 24 months from adoption of the GMP. The majority of the actions begin within 6 months of the GMP adoption. Updates of the status of GMP implementation will be provided at SGA Board meetings and in the biennial Basin Management Report.

Table 5. Schedule for Implementation of GMP Action Items

GMP Component Category 1 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT(Section 3.4)	
Actions. These actions provide multiple opportunities for public interest and involvement and serve to continue regional partnerships and information sharing between multiple water agencies and stakeholders.	
1.1 Involving the Public (Section 3.4.1)	
1. Continue efforts to encourage public participation as opportunities arise.	ongoing
2. Provide briefings, copies of Basin Management Reports, and a written annual summary to the Water Forum Successor Effort on GMP implementation progress.	12 months
3. Provide a written annual summary on GMP implementation progress to JPA signatories.	12 months
4. Work with SGA members to maximize outreach on GMP activities including the use of the SGA Web site, member Web sites, or bill inserts.	ongoing
1.2 Involving Other Agencies Within and Adjacent to the SGA Area (Section 3.4.2)	
1. To the extent practicable attend regular meetings of the Sacramento Central Groundwater Authority and the Placer Groundwater Authority and notify them of SGA Board meetings.	ongoing
2. Provide copies of the adopted GMP and subsequent Biennial Basin Management Reports to representatives from the Western Placer, Sutter County, and Yolo County management groups as well as the Sacramento Central Groundwater Authority and the on-going stakeholder efforts taking place in South Sacramento County.	3 months
3. Meet with representatives from the Western Placer, Sutter County, and Yolo County management groups, as well as the Sacramento Central Groundwater Authority and the on-going stakeholder efforts taking place in South Sacramento County, as needed.	ongoing
4. Coordinate with the Western Placer management group, and the Sacramento Central Groundwater Authority to develop a common data platform and share groundwater-related data to the greatest extent practicable to help ensure the mutual sustainability	12 months

Table 5. Schedule for Implementation of GMP Action Items

GMP Component Category 1 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
of our common groundwater resources.	
1.3 Utilizing Advisory Committees (Section 3.4.3)	
1. The GMP Implementation Committee will meet at least annually to review and guide implementation of the plan. Ad-hoc use of Technical Review Committees will take place, as needed.	ongoing
1.4 Developing Relationships with State and Federal Agencies (Section 3.4.4)	
1. Continue to promote partnerships and work alongside the Water Forum Successor Effort to achieve both local supply reliability and broader regional and statewide benefits.	ongoing
1.5 Pursuing Partnership Opportunities (Section 3.4.5)	
1. Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits.	ongoing
2. Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects.	ongoing

GMP Component Category 2 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
COMPONENT CATEGORY 2: MONITORING PROGRAM (Section 3.5)	
Actions. These actions are being undertaken as part of a comprehensive monitoring program that records and documents groundwater elevations, water quality, and land subsidence, and characterizes the behavior of the SGA groundwater basin with mutual sharing of data with adjoining groundwater management agencies (or authorities).	
2.1 Groundwater Elevation Monitoring (Section 3.5.1)	
1. Coordinate with member agencies to collect data from a group of representative wells for monitoring spring and fall groundwater elevation measurements.	6 months
2. Coordinate with DWR and other well monitoring program partners, including SGA members, to ensure that the selected wells are maintained as part of a long-term monitoring network.	6 months
3. Coordinate with partners and request that the timing of water level data collection occur on or about April 15 and October 15 of each year.	6 months
4. Coordinate with partner agencies to ensure that needed water level elevations are collected and verify that uniform data collection protocols are used among the agencies.	6 months
5. Coordinate with the USGS to determine the potential for integrating USGS monitoring wells constructed for the NAWQA Program into the SGA monitoring network.	12 months

GMP Component Category 2 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
6. Maintain the existing SGA monitoring well network for purposes of groundwater elevation monitoring.	ongoing
7. Provide a biennial assessment of groundwater elevation trends and conditions to SGA's member agencies, the Water Forum Successor Effort, and adjoining groundwater authorities.	3 months
8. Assess the adequacy of the groundwater elevation monitoring well network biennially.	12 months
2.2 Groundwater Quality Monitoring (Section 3.5.2)	
1. Coordinate with member agencies to verify that uniform protocols are used when collecting water quality data.	ongoing
2. Maintain the existing SGA monitoring well network for purposes of groundwater quality monitoring.	ongoing
3. Coordinate with the USGS to continue to obtain water quality data from NAWQA wells.	12 months
4. 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.	12 months
5. Assess the adequacy of the groundwater quality monitoring well network in the Biennial Basin Management Report.	12 months
2.3 Land Surface Elevation Monitoring (Section 3.5.3)	
1. Re-survey the benchmarks established at SGA monitoring wells.	24 months
2. Coordinate with other agencies, particularly the City and County of Sacramento, the NGS, and SAFCA to determine if there are other available data in the SGA area to aid in the analysis of potential land surface subsidence.	6 months
3. Educate SGA member agencies of the potential for land surface subsidence and signs that could be indicators of subsidence.	ongoing
2.4 Surface Water Groundwater Interaction Monitoring (Section 3.5.4)	
1. 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
2. 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. Also use this same data to calibrate groundwater models that simulate this interaction.	12 months
3. 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.	12 months
4. Coordinate with CSUS to analyze data obtained from monitoring wells on the CSUS campus to better understand the relationship between the groundwater basin and surface water flows at that location.	12 months

GMP Component Category 2 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
5. Coordinate with the Corps of Engineers and SAFCA to review projects that could negatively impact recharge from rivers to the underlying groundwater basin.	ongoing
2.5 Protocols for the Collection of Groundwater Data (Section 3.5.5)	
1. Use a Standard Operating Procedure (SOP) for collection of water level data by each of the member agencies. **Appendix D** of the GMP 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).	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 (DPH, 1995).	6 months
3. Provide training on the implementation of these SOPs to member agencies, if requested.	ongoing

GMP Component Category 3 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
COMPONENT CATEGORY 3: DATA MANAGEMENT AND ANALYSIS (Section 3.6)	
Actions. Actions completed under this category will ensure that SGA maintains a centralized database of well status and construction information, groundwater quality and elevation data, and known groundwater contamination sites for application in annual reporting and use in technically appropriate model(s) for analyzing basin management activities.	
3.1 SGA Groundwater Model (Section 3.6.1)	
1. Assemble a committee to review the current functionality of the SGA IGSM application and to discuss the pros and cons of the existing modeling tool and other tools (e.g., IWFM or MODLFOW) that may be available for longer-term modeling needs.	24 months
2. Canvas the membership annually to determine if they have any upcoming modeling needs.	12 months
3. Work with modeling support consultant(s) to identify tools (pre- and post-processing) that can make the model more efficient to operate and to create graphics that help better present modeling results.	12 months
3.1.2 Comprehensive Data Analysis (Section 3.6.2)	
1. Prepare the Biennial Basin Management Report to assess basin conditions in even numbered years.	ongoing
2. Prior to preparation of the 2010 version of the Basin Management Report, review the content of the report with the GMP Implementation Committee to ensure the content of the report is addressing the needs of the SGA members.	18 months
3. If requested, conduct more focused analyses on issues of concern to SGA members (e.g., cluster of contamination emerging or declining water elevations in a particular	ongoing

part of the basin).	
3.3 Data Management System (Section 3.6.3)	
1. Continue to update the SGA database with current water purveyor data.	ongoing
2. Make recommendations to the DMS developer on utilities to add to the DMS to increase its functionality.	ongoing
3. Review the current database and recommend actions to increase the accuracy and efficiency of the SGA database.	12 months
4. Work with adjacent groundwater authorities on shared data protocols to achieve the highest level of confidence in the comprehensive data analysis.	12 months

GMP Component Category 4 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
COMPONENT CATEGORY 4: GROUNDWATER RESOURCE PROTECTION (Section 3.7)	
Actions. Management actions completed under this category serve to educate the water community on steps necessary in the construction, operation, and abandonment of wells for the protection and continued use of groundwater as a potable drinking water supply.	
4.1 Well Construction Policies (Section 3.7.1)	
1. Ensure that all member agencies are provided a copy of the county well ordinance and understand the proper well construction procedures.	6 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 Sacramento County EMD and SGA members for their review and possible use.	6 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.	ongoing
4.2 Well Abandonment and Well Destruction Policies (Section 3.7.2)	
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.	12 months
2. Coordinate with the Sacramento County EMD to identify ways to ensure that wells in the SGA area are properly abandoned or destroyed.	ongoing
4.3 Wellhead Protection Measures (Section 3.7.3)	
1. Obtain an updated coverage of potentially contaminating activities and provide to member agencies for their use in protecting existing wells and in siting future wells.	12 months
2. Canvas the SGA membership for current wellhead protection measures and provide a summary of actions taken by others as a tool in managing their individual wellhead	18 months

GMP Component Category 4 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
protection programs.	
4.4 Protection of Recharge Areas (Section 3.7.4)	
1. Quantify, using the existing numerical SGA groundwater model, the potential recharge over the SGA area.	18 months
2. Compare modeling results with existing geologic maps to develop a map of areas that are potentially contributing significant recharge in the basin.	18 months
3. Communicate with adjacent groundwater authorities and land-use planners to emphasize the need to protect prominent groundwater recharge areas and pursue mutual joint efforts in pursuing grants for the purpose of understanding the value and need for protecting undeveloped groundwater recharge areas.	18 months
4.5 Control of the Migration and Remediation of Contaminated Groundwater (Section 3.7.5)	
1. Continue facilitation of Regional Contamination Issues Committee to coordinate the efforts of regulators, responsible parties, and water purveyors to expedite the cleanup of contamination in the basin.	ongoing
2. Coordinate with known responsible parties to develop a network of monitoring wells to act as an early warning system for public supply wells.	ongoing
3. 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 the directional flow of groundwater.	ongoing
4. 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 and monitoring wells.	12 months
4.6 Control of Saline Water Intrusion (Section 3.7.6)	
1. Observe TDS concentrations in public supply wells that are routinely sampled under the DPH Title 22 Program. These data will be readily available in the SGA's DMS and are already an on-going task for the biennial assessment of basin conditions.	ongoing
2. Inform all member water purveyor managers of the presence of the saline water interface in the deep Mehrten formation 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 Sacramento County 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.	12 months

GMP Component Category 5 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
COMPONENT CATEGORY 5: GROUNDWATER SUSTAINABILITY (Section 3.8)	
Actions. These actions will allow SGA to continue its role in supporting regional activities relevant to the long term sustainability of groundwater.	
5.1 Conjunctive Management Activities (Section 3.8.1)	
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.	ongoing
2. Continue to investigate opportunities for the development of direct recharge facilities in addition to in-lieu recharge (e.g. aquifer storage and recovery wells or surface spreading facilities, through constructed recharge basins or in river or streambeds).	ongoing
3. Participate directly with the RWA IRWMP effort and ensure that SGA projects are included in the IRWMP.	ongoing
4. Implement the SGA Water Accounting Framework to track the level of implementation of an appropriate conjunctive use program for the sustainability of the underlying groundwater basin.	12 months
5. Report annually, or as-needed, to the Water Forum Successor Effort on the planning and completion of projects that increase capacity to conjunctively manage the groundwater basin and also report on issues that reduce conjunctive management capacity (e.g., detection of contaminants).	12 months
6. Meet with representatives of the upper American River watershed to discuss their recently completed climate change analysis and identify opportunities for incorporating this information into a study for responding to changing future hydrologic conditions.	6 months
7. Coordinate with state and federal water agencies to determine if there are any forecasting resources available to give local water suppliers advance warning of expected water supply conditions for the upcoming year.	6 months
8. Meet with representatives of the USBR to understand the status of any studies of future climate change impacts and other operational criteria that could impact operations at Folsom Reservoir, which could impact conjunctive use operations.	12 months
9. Coordinate with representatives from Sacramento Central Groundwater Authority and existing Placer County and Sutter County groundwater management efforts to communicate expected water elevation changes resulting from conjunctive use in the SGA area and to understand the efforts and expected results of implementing conjunctive use in their respective management areas.	12 months
5.2 Assess Water Quality Threats to Groundwater Basin Sustainability (Section 3.8.2)	
1. Using the existing SGA IGSM application and the locations of known contaminant plumes in the basin, run modeling scenarios that simulate the current planned conjunctive use program in the SGA basin to determine the potential future movement of contamination and the potential extent of threatened water supply facilities.	6 months
2. Update known potentially contaminating activities and other known point-source contaminants (e.g., leaking underground storage tanks) to determine where significant risks may exist to current or planned water supply facilities.	6 months
3. Review potential upcoming regulatory changes to water quality standards that could	12 months

GMP Component Category 5 and Actions	Implementation Schedule (approx. time based upon date of adoption of the 2008 SGA GMP)
negatively impact water supply facilities.	
4. Following completion of the actions above, recommend follow on studies where areas of significant concern or where data gaps exist.	18 months
5.3 Potable Supply Demand Reduction (Section 3.8.3)	
1. Coordinate with the RWA and its members that have signed PSAs to the WFA to understand if agreed upon 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.	12 months
2. Coordinate with SRCSD through the RWA to investigate opportunities for expanded use of recycled water throughout the county as a non-potable supply for outdoor irrigation providing natural in-lieu recharge to the groundwater basin.	12 months
3. Encourage the appropriate application of treated remediated groundwater for beneficial uses to help reduce demands for potable water supply and to prevent the erosion of the sustainable yields of the North and Central Area Basins.	ongoing

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Appendix A

SGA Joint Powers Agreement

NOTE: THIS AGREEMENT SUPERCEDES AG2000-074.

JOINT POWERS AGREEMENT BETWEEN THE CITY OF CITRUS HEIGHTS, THE CITY OF FOLSOM, THE CITY OF SACRAMENTO AND THE COUNTY OF SACRAMENTO CREATING THE SACRAMENTO-GROUNDWATER AUTHORITY

This Agreement is made and entered into this 7th day of May, 2002, by and between the City of Citrus Heights, a municipal corporation, the City of Folsom, a municipal corporation, the City of Sacramento, a municipal corporation, and the County of Sacramento, a political subdivision of the State of California ("County").

RECITALS

WHEREAS, each of the parties to this Agreement is a local government entity functioning within the County of Sacramento; and

WHEREAS, pursuant to the Joint Exercise of Powers Act (Chapter 5 of Division 7 of Title 1 of the California Government Code), two or more public agencies may by agreement jointly exercise any power held in common by the agencies entering into such an agreement; and

WHEREAS, each of the parties hereto has under its police power the authority to regulate groundwater; and

WHEREAS, the parties hereto have each been either directly or indirectly involved in the process commonly referred to as the Sacramento Area Water Forum ("Water Forum"); and

WHEREAS, the Water Forum process has resulted in the development of a Groundwater Management Element, dated August, 1998 ("Groundwater Management Element"), which provides for the formation of a groundwater management authority for the north area of the County of Sacramento pursuant to a joint powers agreement between the City of Citrus Heights, the City of Folsom, the City of Sacramento and the County; and

WHEREAS, a true and correct copy of the Groundwater Management Element is attached hereto and incorporated herein as Exhibit "A"; and

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WHEREAS, the completion of the Water Forum process and the approval of the final Water Plan by the Water Forum stakeholders has been delayed for reasons unrelated to groundwater management issues; and

WHEREAS, the parties hereto and the Water Forum stakeholders who have been involved in the development of the Groundwater Management Element believe that it is in the public interest to move forward with the development of the institutional framework necessary to implement the Groundwater Management Element within the North Area Basin, rather than suspending those efforts until such time as the Water Forum process is finalized; and

WHEREAS, the formation of the joint powers authority contemplated by this Agreement is not legally dependent upon the finalization of the Water Forum process, but is independently authorized by state law; and

WHEREAS, the parties hereto find that it is to their mutual advantage and benefit to establish such a groundwater management authority pursuant to this Agreement in order to implement the groundwater management policies embodied in the Groundwater Management Element; and

WHEREAS, the parties hereto find and declare that the conservation of groundwater resources within the North Area Basin for agricultural and municipal and industrial uses is in the public interest and for the common benefit of all water users within the County of Sacramento; and

WHEREAS, the overriding purpose of the joint powers authority established pursuant to this Agreement is to maintain the sustainable yield of the North Area Basin as set forth in the Groundwater Management Element; and

WHEREAS, it is the desire of the parties hereto to use the groundwater management powers which they have in common that are necessary and appropriate to further the purposes for which the joint powers authority is being established; and

WHEREAS, the parties hereto are receptive to amending this Agreement in the future to include public agencies outside the County of Sacramento who have a specific and relevant interest in the North Area Basin.

NOW, THEREFORE, in consideration of the promises, terms, conditions, and covenants contained herein, the City of Citrus Heights, the City of Folsom, the City of Sacramento and the County hereby agree as follows:

1. **Incorporation of Recitals.** The foregoing recitals are hereby incorporated by reference.

2. **Definitions.** As used in this Agreement, the following words and phrases shall have the meanings set forth below unless the context clearly indicates otherwise.

(a) "Conjunctive use" shall mean the planned management and use of both groundwater and surface water in order to maintain the sustainable yield of the North Area Basin.

(b) "North Area Basin" shall mean the groundwater basin underlying the area within the boundaries of the Authority.

(c) "Sustainable yield" shall mean the amount of groundwater which can be safely extracted from the North Area Basin on an estimated average annual basis while maintaining groundwater elevations and groundwater quality at acceptable levels as set forth in the Groundwater Management Element. Sustainable yield requires a balance between extraction and basin recharge and is expressed as the number of acre feet of

groundwater per year which can be extracted from the North Area Basin on an average annual basis as set forth in the Groundwater Management Element.

(d) "Water Production," for purposes of determining assessments, fees or charges to support Water Costs of the Authority, means the total amount of groundwater produced within the boundaries of the Authority by each retail provider, by Agricultural Interests, and by Commercial/Industrial Self-Supplied Water Users for use within the boundaries of the Authority or other areas approved by the Board.

3. **Purpose.** This Agreement is being entered into in order to establish a joint powers authority for the following purposes:

(a) to maintain the long-term sustainable yield of the North Area Basin;

(b) to manage the use of groundwater in the North Area Basin and facilitate implementation of an appropriate conjunctive use program by water purveyors;

(c) to coordinate efforts among those entities represented on the governing body of the joint powers authority to devise and implement strategies to safeguard groundwater quality; and

(d) to work collaboratively with other entities, including groundwater management authorities that may be formed in other areas of the County of Sacramento and adjacent political jurisdictions, to promote coordination of policies and activities throughout the region.

4. **Establishment Of The Authority.** There is hereby established pursuant to the Joint Exercise of Powers Act a joint powers authority which shall be a public entity separate from the parties to this Agreement. The name of such entity shall be the Sacramento Groundwater Authority ("Authority"). The boundaries of the Authority shall be as follows: north of the American River to the Sacramento County line; bounded on the south by the

American River; on the west by the Sacramento River; on the north and east by the Sacramento County line; and including the City of Folsom. A map depicting the boundaries of the Authority is attached hereto and incorporated herein as Exhibit "B".

5. **Membership Of The Governing Board.** The governing body of the Authority shall be a Board of Directors of sixteen (16) members consisting of the following representatives who shall be appointed in the manner set forth in Section 7 of this Agreement:

(a) An elected member of the governing board or designated employee of each of the following public agencies: the City of Folsom, the City of Sacramento and the Sacramento County Water Agency.

(b) An elected member of the governing board of each of the following public agencies: the Carmichael Water District, the Citrus Heights Water District, the Del Paso Manor Water District, the Fair Oaks Water District, the Rio Linda/Elverta Community Water District, the Sacramento Suburban Water District, and the San Juan Water District.

(c) A member of the board of directors, or designee thereof, of each of the following private water purveyors or investor owned utilities: the Arden Cordova Water Company, California-American Water Company, the Natomas Central Mutual Water Company and the Orange Vale Water Company.

(d) One representative of Agricultural Interests within the boundaries of the Authority.

(e) One representative of Commercial/Industrial Self-Supplied Water Users within the boundaries of the Authority.

6. **Adjustment To Composition Of Governing Board.** Should circumstances change in the future, any person or entity may petition the parties hereto to amend this Agreement so as to add or delete representatives to the governing board to accurately reflect groundwater production within the boundaries of the Authority.

7. **Appointment Of Members Of Governing Board.**

(a) The members of the governing board of the Authority shall be appointed as follows:

(i) The City of Folsom representative shall be appointed by the Folsom City Council.

(ii) The Agricultural Interests representative shall be appointed by the County Board of Supervisors.

(iii) The representative of Commercial/Industrial Self-Supplied Water Users shall be appointed by the Sacramento City Council.

(iv) The Citrus Heights City Council shall appoint the representative of the Citrus Heights Water District.

(v) The Sacramento City Council shall appoint the representatives of the following entities: Arden Cordova Water Company, California-American Water Company, the City of Sacramento, Del Paso Manor Water District, the Natomas Central Mutual Water Company, and Sacramento Suburban Water District.

(vi) The County Board of Supervisors shall appoint the representatives of the following entities: Carmichael Water District, Fair Oaks Water District, Orange Vale Water Company, Rio Linda/Elverta Community Water District, San Juan Water District and the Sacramento County Water Agency.

(b) Prior to the appointment of the representatives of the entities described in subsections (a)(v) and (vi) above, those entities shall submit a recommended appointment for their respective representatives to the appointing authority. The appointing authority shall give consideration to such recommendations, but shall retain the absolute discretion to appoint any person satisfying the criteria for appointment set forth in Section 5 hereof.

8. **Governing Board Voting Requirements.**

(a) Each member of the governing board of the Authority shall have one vote. With the exception of fiscal items as set forth in subsections (b) and (c) below, a majority vote of all members of the governing board is required to approve any item.

(b) Fiscal items related to the **Administrative Costs** of the Authority shall require approval by a double majority consisting of the following: a majority vote of all members of the governing board and a majority vote weighted according to the financial contribution of each Retail Provider, of Agricultural Interests, or of Commercial/Industrial Self-Supplied Water Users to the total administrative budget for the last complete fiscal year. The weighted vote of each member of the governing board shall be established and fixed annually at the time the Financing Plan for the administrative budget is adopted, and shall remain in effect throughout the succeeding fiscal year and shall apply to all votes on fiscal items related to the Administrative Costs of the Authority.

(c) Fiscal items related to **Water Costs** shall require approval by a double majority consisting of the following: a majority of all members of the governing board and a majority vote weighted on the basis of Water Production as defined in Section 2(d) hereof.

(d) For purposes of subsection (c) hereof, the weighted vote of the representative of Agricultural Interests and the Commercial/Industrial Self-Supplied Water Users representative shall be weighted on the basis of groundwater production by all such interests and users within the boundaries of the Authority, adjusted to reflect any differential rate which may be paid by a particular classification of water users; e.g., if each acre-foot of water pumped equals one vote and Agricultural Interests pump 100,000

acre feet, but pay only 20% of the per acre-foot assessment, fee or charge levied on other types of pumpers, the vote of the Agricultural Interests representative would be calculated at 20,000 votes.

(e) Water Production, as defined in Section 2(d) hereof, shall be based on an annual determination by the governing body of the Authority during the previous calendar year. Until such time as the governing board of the Authority makes its annual determination of Water Production, the last complete yearly calculation shall be controlling for purposes of the double majority requirement set forth in subsection (c) above.

9. **Quorum.** A majority of the members of the governing board shall constitute a quorum for purposes of transacting business, except less than a quorum may vote to adjourn a meeting.

10. **Terms Of Office.** With the exception of the initial term of the representatives appointed by the City of Folsom and the City of Sacramento, the term of office of each member of the governing board the Authority shall be for a period of four (4) years. For the purpose of providing staggered terms of office, the term of the initial representatives appointed by the City of Folsom and the City of Sacramento shall be for a period of two (2) years. Thereafter, the term of office of each representative appointed by the City of Folsom and the City of Sacramento shall be for a period of four (4) years. Each member of the governing board shall serve at the pleasure of the appointing body and may be removed as a member of the governing board by the appointing body at any time. If at any time a vacancy occurs on the governing board, a replacement shall be appointed to fill the unexpired term of the previous representative pursuant to the provisions of Section 7 hereof within ninety (90) days of the date that such position becomes vacant.

11. **Alternates.** The City of Citrus Heights, the City of Folsom, the City of Sacramento and the County, in addition to their regular appointments, shall appoint one or more persons with the required qualifications to serve as alternate members of the governing board of the Authority. Any such alternates shall be empowered to cast votes in the absence of the regular members or, in the event of a conflict of interest preventing the regular member from voting, to vote because of such a conflict of interest.

12. **Organization Of The Authority.** The governing board of the Authority shall elect a chair, a vice chair and such other officers as the governing board shall find appropriate. Such officers shall serve for a term of one (1) year unless sooner terminated at the pleasure of the governing board.

13. **Treasurer, Controller, Clerk and Legal Counsel.** The governing board of the Authority shall appoint a treasurer, controller, clerk and legal counsel as it deems appropriate. The controller of the Authority shall cause an independent annual audit of the Authority's finances to be made by a certified public accountant in compliance with Government Code Section 6505. The treasurer of the Authority shall be the depositor and shall have custody of all money of the Authority from whatever source. The controller of the Authority shall draw warrants to pay demands against the Authority when the demands have been approved by the Authority or by its authorized representative pursuant to any delegation of authority adopted by the Authority. The treasurer and controller shall comply strictly with the provisions of statutes relating to their duties found in Chapter 5 (commencing with Section 6500) of Division 7 of Title 1 of the Government Code.

14. **Executive Director.** The governing board of the Authority shall appoint an Executive Director-who shall be responsible to the governing board for the proper and efficient administration of the Authority as directed by the governing board pursuant to the provisions of

this Agreement or of any ordinance, resolution or order of the governing board. In addition to any other duties which may be assigned, the Executive Director shall have the following authority:

(a) under the policy direction of the governing board, to plan, organize and direct all Authority activities;

(b) to authorize expenditures within the designations and limitations of the budget approved by the governing board;

(c) to make recommendations to and requests of the governing board concerning any matter which is to be performed, done or carried out by the governing board;

(d) to have the authority to appoint, discipline, assign and otherwise supervise and control the activities of any employees or contractors which may be hired or retained by the Authority; and

(e) to have charge of, handle and have access to any property of the Authority.

15. **Meetings.** The Authority shall provide for regular and special meetings in accordance with the Ralph M. Brown Act (Chapter 9 (commencing with Section 54950) of Part 1 of Division 2 of Title 5 of the Government Code) or with any successor provision.

16. **Powers and Functions.**

(a) The Authority shall have no power to regulate land use or to engage in the retail sale of water and shall be prohibited from restricting or otherwise limiting the extraction of groundwater within the boundaries of the Authority except by means of economic incentives and disincentives. The Authority shall further be prohibited from funding any capital construction projects. In addition, prior to October 13, 2003, the Authority shall be prohibited from levying annual fees or assessments to fund Water Cost payments that exceed an annual average charge during such five (5) year period of $5.00 for each acre

foot (minimum $0.00-maximum $10.00) of groundwater pumped from the North Area Basin during such five (5) year period. Further, during any individual year of such five (5) year period, the Authority shall be prohibited from levying annual fees or assessments to fund Water Cost payments that exceed a charge of $10.00 for each acre foot of groundwater pumped from the North Area Basin during any such year. For purposes of this section, Water Costs shall include the cost of water, pumping and treatment costs, and other costs related to any Conjunctive Use program administered by the Authority.

(b) Subject to the limitations set forth in subsection (a), the Authority shall have any and all powers commonly held by the parties hereto necessary or appropriate to regulate groundwater within the boundaries of the Authority including, but not limited to, the following powers:

(i) Collect and monitor data on the extraction of groundwater from, and the quality of groundwater in, the North Area Basin;

(ii) Establish and administer a Conjunctive Use program for the purpose of maintaining Sustainable yields in the North Area Basin consistent with the Groundwater Management Element;

(iii) Buy and sell water on other than a retail basis;

(iv) Exchange water;

(v) Distribute water in exchange for ceasing or reducing groundwater extractions;

(vi) Spread, sink and inject water into the North Area Basin;

(vii) Store, transport, recapture, recycle, purify, treat or otherwise manage and control water for the beneficial use of persons and property within the Authority;

(viii) To implement any Conjunctive Use program which the Authority deems necessary to maintain Sustainable yields in the North Area Basin consistent with the Groundwater Management Element; and

(ix) Study and plan ways and means to implement any or all of the foregoing powers.

(c) For purposes of exercising the authority set forth in subsection (b), and subject to the limitations set forth in subsection (a), the Authority shall have the following corporate and political powers:

(i) To sue and be sued in all actions and proceedings in all courts and tribunals.

(ii) To adopt a seal and alter it at its discretion.

(iii) To take by grant, purchase, gift, devise or lease, to hold, use and enjoy, and to lease, convey or dispose of, real and personal property of every kind, within or without the boundaries of the Authority, necessary or convenient to the full exercise of its power.

(iv) For the common benefit of the Authority, to store water in underground water basins or reservoirs within and outside the Authority, to appropriate water and acquire water rights within or outside the Authority, to import water into the Authority, and to conserve, or cause the conservation of, water within or outside the Authority.

(v) To exercise the right of eminent domain to take any property necessary to supply the Authority or any portion of it with replenishment water; provided that the right of eminent domain may not be exercised with respect to water and water rights, and may not be exercised with respect to any property owned or occupied

by any of the parties hereto or the entities represented on the governing board of the Authority.

(vi) To act jointly, or cooperate, with the United States or any agency thereof, the state, or any county or agency thereof, or any political subdivision or district therein, including flood control districts, private and public corporations, and any person, so that the powers of the Authority may be fully and economically exercised.

(vii) To cause taxes, assessments, fees or charges to be levied in accordance with applicable State law, and in a manner consistent with the Groundwater Management Element, to accomplish the purposes of the Authority.

(viii) To require the permitting of groundwater extraction facilities within the boundaries of the Authority, to maintain a record of extraction with respect to any such facilities, and to require the installation of meters on groundwater extraction facilities for the purpose of determining the amount of groundwater being extracted from the North Area Basin.

(ix) To make contracts, employ labor and to do all acts necessary for the full exercise of the Authority's powers.

(x) To carry on technical and other investigations of all kinds necessary to further the purposes of the Authority.

(xi) To fix rates at which water acquired by the Authority shall be sold for replenishment purposes, and to establish different rates for different classes of service or conditions of service, provided that the rates shall be uniform for like classes and conditions of service.

(xii) To participate in any contract under which producers may voluntarily agree to use surface water in lieu of groundwater, and to that end the Authority may become a party to the contract and pay from Authority funds that portion of the cost of the surface water as will encourage the purchase and use of that water in lieu of pumping so long as persons or property within the boundaries of the Authority are directly or indirectly benefitted by the resulting replenishment of the North Area Basin.

(xiii) To apply for, accept and receive state, federal or local licenses, permits, grants, loans or other aid from any agency of the United States, the State of California, or other public or private entity necessary or appropriate for the Authority's full exercise of its powers.

17. **Budgets.** Within ninety days after the first meeting of the governing board of the Authority, and thereafter prior to the commencement of each fiscal year (defined as July 1 through June 30), the governing board shall adopt a budget for the Authority for the ensuing fiscal year.

18. **Termination.** This Agreement shall remain in effect until terminated by one of the parties hereto pursuant to this section. This Agreement may be terminated by any of the parties hereto at any time and for any reason by providing ninety (90) days written notice of termination to the other parties. Except as provided in Section 19(b) hereof, the Authority shall automatically terminate upon the effective date of the termination of this Agreement.

19. **Disposition Of Authority Assets Upon Termination.**

(a) In the event of the termination of the Authority where there will be a successor public entity which will carry on the functions of the Authority and assume its assets, the assets of the Authority shall be transferred to the successor public entity.

(b) If there is no successor public entity which will carry on the functions of the Authority and assume its assets, the assets shall be returned to the parties hereto in proportion to the contribution of each party during the term of this Agreement.

(c) If there is a successor public entity which will carry on some of the functions of the Authority and assume some of its assets, the assets of the Authority shall be allocated by the governing board of the Authority between the successor public entity and the parties hereto.

20. **Liabilities.** The debts, liabilities and obligations of the Authority shall be the debts, liabilities and obligations of the Authority alone, and not of the parties to this Agreement.

21. **Rules.** The governing board of the Authority may adopt from time to time such rules and regulations for the conduct of its affairs as it deems necessary and appropriate.

22. **Minutes.** The clerk appointed by the governing board of the Authority shall cause to be kept minutes of all meetings of the governing board, and shall cause a copy of the minutes to be forwarded to each member of the governing board and to each of the parties hereto.

23. **Effective Date.** The Authority was created on October 13, 1998. This Agreement, which replaces and supercedes all prior Agreements and Amendments to the Joint Powers Agreement creating the Authority, shall become effective when the governing bodies of all the parties shall have authorized its execution.

24. **Amendments.** This Agreement may only be amended by the affirmative vote of the governing bodies of all of the parties hereto.

IN WITNESS WHEREOF, the parties hereto execute this Agreement on the date first

written above.

CITY OF CITRUS HEIGHTS

Dated: 6/26/02

By Roberta MacGlashe
Mayor

Attest:

City Clerk

Approved As To Form:

City Attorney

CITY OF FOLSOM

Dated: 8.18.02

By
Mayor

Attest:

Lisa Robinson
City Clerk

Approved As To Form:

City Attorney 8/16/02

CITY OF SACRAMENTO

Dated: 6-18-02

By Heather Fargo
Mayor

Attest:

Valerie C. Burrows
City Clerk

Approved As To Form:

Joel Robbins
City Attorney

COUNTY OF SACRAMENTO

MAY 07 2002

By Don Nottoli
Chairperson, Board of Supervisors

Attest:

Cindy H. Turner
Clerk of the Board

Approved As To Form:

John F. Whit
County Counsel

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05-07-2002 SGA Revised JPA

CITY
AGREEMENT NO. 2000-074-A

Appendix B

SGA 2003 Groundwater Management Plan Action Items Tracking Table

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
COMPONENT CATEGORY 1: STAKEHOLDER INVOLVEMENT			
1.1	***Involving the Public***		
1	Continue efforts to encourage public participation as opportunities arise.	On-going	Provide GMP Program status update at each publicly noticed SGA Board meeting.
2	Review and take actions from the public outreach plan as necessary during implementation of various aspects of the GMP.	On-going	SGA has not encountered any issues requiring significant public outreach since adopting the GMP. To date, the most effective ways of notifying the public have been through regular Board meetings, quarterly newsletters, and the SGA website. The SGA website includes a regularly updated announcements section on the main page. Finally, SGA's participation in regular monthly meetings of the Water Forum Successor Effort (see item below) provides opportunities to identify issues from a variety of interests throughout the region.
3	Provide briefings to the Water Forum Successor Effort on GMP implementation progress.	On-going	SGA staff participate in regular monthly meetings of both the Water Forum Successor Effort and are available to provide briefings upon request. SGA staff met with incoming WFSE Executive Director on August 7, 2007 to provide a briefing on SGA activities.
4	Work with members to maximize outreach on GMP activities including the use of the SGA website, member websites, or bill inserts.	On-going	SGA website launched in November 2003 (www.sgah2o.org). Provide updates through regular quarterly newsletter by RWA and SGA. Beginning in May 2007, SGA staff is conducting additional outreach to SGA member agencies by presenting SGA overview at regular meetings of member agencies. Between June and October, briefings were provided to nine SGA member agencies.
1.2	***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	SGA staff participate in regular meetings of both the Water Forum Successor Effort and the Central Sacramento County Groundwater Forum.
2	Provide copies of the adopted GMP and subsequent annual reports to representatives from Placer, Sutter, and Yolo counties, and the Groundwater Forum.	On-going	Copies of the GMP were sent to Placer County (Placer County Water Agency, City of Lincoln, City of Roseville), Sutter County (South Sutter Water District, Sutter County Public Works), Yolo County Resources Coordinator, and Sacramento County Water Agency (representing the Central Sacramento County Groundwater Forum) on January 22, 2004. The schedule for the Basin Management Report (BMR) has been modified to a biennial report. Copies of the BMR were mailed on June 26, 2006 to stakeholders representing Yolo County Water Resources Association, South Sutter Water District, Placer County Water Agency, City of Roseville, City of Lincoln, Central Sacramento County Groundwater Forum, and the Water Forum Successor Effort.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
3	Meet with representatives from Placer, Sutter, and Yolo counties, and the Central Sacramento County Groundwater Forum as needed.	On-going	Left voice mail with Linda Fiack, Yolo County Resource Director (530) 666-8019 on July 30, 2004 offering to provide briefing at their request. Spoke to Brad Arnold, GM of South Sutter WD (530) 656-2242 on July 30, 2004. Brad indicated that South Sutter WD will begin updating their AB3030 plan soon. SGA offered assistance, including potentially sitting on an advisory committee for the update. On August 30, 2004, Sacramento County WA staff requested that SGA staff participate in limited review of a GMP under development for SCWA's Zone 40 area. Attended regular monthly meetings of Central Sacramento County Groundwater Forum. In August 2006, the Forum officially formed as the Central Sacramento Groundwater Authority. SGA staff attend regular meetings of the Authority as appropriate. SGA/RWA Executive Director serves on the Implementation Committee of the City of Lincoln GMP.
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 a list of agricultural groundwater pumpers concerns and needs relative to SGA's management of the area.	Deferred	Met with Jack DeWit, an SGA Board member and independent agricultural groundwater pumper within SGA in May 2004. Jack agreed to facilitate setting up a meeting with what is a small number of independent pumpers in early 2005 prior to commencement of the next growing season. In June 2005, the SGA adopted a resolution to not assess fees to agricultural water pumpers. The GMP Implementation Committee recommended that staff defer action on this item until such time as specific concerns or needs are expressed.
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.	Deferred	Received list with contact information of 23 small water systems licensed through DHS within the SGA area from Sac County EMD (small water systems in SGA.doc) on August 31, 2004. The systems total approximately 35 wells. EMD confirmed that pumping by these systems is not reported to the EMD or DHS. Because these pumpers likely account for a very small percentage of pumping in the basin, the GMP Implementation Committee has decided to defer any actions in coordinating with them at this time.
1.3	***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.	Complete	A GMP Implementation Committee was established on July 8, 2004 consisting of Mitch Dion (Cal-AM WC), Rob Roscoe (SSWD), Shauna Lorance (SJWD) and Gary Reents (City of Sacramento). The first committee meeting was held August 2, 2004. Committee met January 31, 2005. Will meet as needed for future.
1.4	***Developing Relationships with State and Federal Agencies***		

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
1	Continue to develop working relationships with local, state, and federal regulatory agencies.	On-going	Provided regional briefing of water supply issues to the Manager of the Water Policy and Reform Team for the Government of Australia on Oct 8, 2004. The briefing was given at the request of DWR. Met with management and staff of USEPA, SWRCB, Central Valley RWQCB, DTSC, Water Forum Successor Effort, and purveyors on November 4, 2004 to express concerns over regional impacts of contamination in basin. Beginning in June 2005, set the fourth Tursday of every month as a standing meeting date with regulatory representatives of Aerojet and McClellan contaminant sites. This meeting will serve to involve other regulatory agencies as needed. Met again with regulatory agency staff to update progress in November 2006. SGA staff serve on a Joint Technical Team to evaluate groundwater remediation options at McClellan. The JTT was sunsetted in June 2006 with the successful conclusion of a remediation plan for VOCs in groundwater at McClellan. This resulted in the execution of a Record of Decision for remediation in August 2007.
1.5	***Pursuing Partnership Opportunities***		
1	Continue to promote partnerships that achieve both local supply reliability and achieve broader regional and statewide benefits.	On-going	SGA staff will promote partnerships as requested by SGA membership. SGA is closely coordinated with the RWA Integrated Regional Water Management Planning Program. Part of that effort has identified the need to update the IGSM regional model. SGA was successful in its application for an AB 303 grant from DWR to fund half of the update in June 2005.
2	Continue to track grant opportunities to fund groundwater management activities and local water infrastructure projects.	On-going	Awarded $250K AB303 grant on June 30, 2004 for regional monitoring well network. Awarded $250K AB303 grant on June 30, 2005 for update to regional groundwater model. SGA is currently preparing an AB 303 grant application due in December 11, 2007.
COMPONENT CATEGORY 2: MONITORING PROGRAM			
2.1	***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.	Complete	SGA met DWR and SCWA on January 29, 2004 at the DWR Central District Office. The status of the existing wells in the monitoring network was discussed. Some of the wells are questionable for monitoring and the agencies will work together to look for opportunities to replace those wells in the long-term.
2	Coordinate with DWR and SCWA to ensure that the selected wells are maintained as part of a long-term monitoring network.	Complete	SGA met DWR and SCWA on January 29, 2004 at the DWR Central District Office and explained the importance of their monitoring wells to our overall network and determined that both DWR and SCWA are maintaining long-term monitoring plans in the basin.
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.	Complete	SGA met DWR and SCWA on January 29, 2004 to coordinate the timing of water elevation measurements. An April 15 goal was set for the collection of spring water elevations. An October 15 goal was set for the collection of fall water elevations. Each participating agency attempted to collect levels within +/- two weeks of these dates. The most recent request for water elevation data was sent to participants in October 2007.
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.	Complete	The final GMP was sent to all member agency General Managers and Directors on January 23, 2004. Water leve measurement protocols are included in Appendix D of the SGA GMP. The other important aspect with respect to protocol is the timing of measurements. SGA coordinated with member agencies to collect spring water elevations around April 15 and fall measurements around October 15.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
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.	Complete	SGA spoke with Ken Belitz (California NAWQA Program Chief) of the USGS on January 7, 2004. Ken referred SGA staff to USGS staff to coordinate the collection of water elevation data from USGS monitoring wells when the timing of collection is determined. In February 2005, received water elevation data through 2004 for USGS NAWQA wells monitored in the Sacramento area. In September 2006, SGA approved to allow USGS to add two monitoring wells in SGA's monitoring well network (funded by an AB303 grant) to be added to the USGS NAWQA program. These wells have been sampled by USGS and added to their 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.	On-going	Secured $250K AB303 grant to install dedicated monitoring wells in the basin - award date June 30, 2004. In October 2005, completed installation of nine regional monitoring wells where critical data gaps were known. In 2005, received data on monitoring wells associated with McClellan and Aerojet. The data are mostly limited to water elevation data, but do include some water quality parameters related to contaminant monitoring. Discussed with Dana Booth at February 23, 2004 meeting about opportunities to integrate wells from existing LUST sites into our network. Had subsequent meeting with Dana Booth on Sep 7, 2004 - Mr. Booth indicated that opportunities could be available to collect split samples from these sites to analyze water quality for our information. Given the additional regional monitoring wells and more data available through McClellan, Aerojet, and the USGS NAWQA wells, SGA will not pursue this further at this time.
7	Assess groundwater elevation trends and conditions based on the network annually.	On-going	Initial State of the Basin Report for 2002 calendar year data was completed in February 2004. Electronic version of report is available on SGA website. State of Basin Report for 2003 and 2004 calendar years was completed in June 2006 (renamed as Basin Management Report). The BMR demonstrates that in general groundwater levels stabilized in the basin beginning in the mid-1990s and have even shown some recovery on the order of 0.5 feet/year over the last few years. Preparation of the BMR for 2005 and 2006 will commence in early 2008.
8	Assess the adequacy of the groundwater elevation monitoring well network annually.	On-going	The May 2006 Basin Management Report demonstrates that water elevations are stabilized or recovering in general. The BMR also documents the installation of a regional monitoring well network. Under present conditions, the monitoring network is appropriate.
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.	On-going	This will continue to be assessed through time. Dedicated pressure transducers were installed on eight of the nine regional monitoring wells constructed through funding from a DWR AB 303 grant. Recordings are currently logged four times per day.
2.2	***Groundwater Quality Monitoring***		
1	Coordinate with member agencies to verify that uniform protocols are used when collecting water quality data.	Complete	A copy of the DHS guidelines were sent to all member agency General Managers and Directors on January 23, 2004 with the GMP.
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.	On-going	Obtained 1998 water quality data from USGS for NAWQA wells. Wells were sampled again by USGS in 2003/2004. That data will be provided to SGA when it has been QA/QC checked. SGA participated in a USGS/SWRCB AB 599 water quality sampling program in early 2005. The results of that study are expected in late 2007.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
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.	Complete	Added monitoring well data from McClellan and Aerojet.
4	Assess the adequacy of the groundwater quality monitoring well network annually.	On-going	To be assessed through preparation of the Basin Management Report.
2.3	***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.	Complete	Sacramento Suburban Water District has been awarded an AB303 grant application to be conduct additional surveying of these and other locations in 2006.
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.	Deferred	Surveys data from benchmarks in the Arden Arcade area indicate that subsidence is not a significant concern at this time. Additionally, the uncertainties associated with InSAR in rapidly growing urban and agricultural areas makes this a low priority at this time.
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.	Deferred	Surveys data from benchmarks in the Arden Arcade area indicate that subsidence is not a significant concern at this time. Because of limited staff time at SGA, this task is being deferred.
4	Educate SGA member agencies of the potential for land surface subsidence and signs that could be indicators of subsidence.	Deferred	Surveys data from benchmarks in the Arden Arcade area indicate that subsidence is not a significant concern at this time. Because of limited staff time at SGA, this task is being deferred.
2.4	***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.	Complete	A memorandum report on available data on the American River was prepared for SGA by MWH on September 22 2004. This included a summary of known inputs and outputs to the stream budget of the American River. The Sacramento Coordinated Water Quality Management Program completes an annual monitoring report including water quality and flow data at several locations along the American and Sacramento Rivers. SGA has obtained the 2002-2003 version of this report. One of the objectives of the current effort to update the SGA groundwater model (IGSM) was to simulate daily flows on the American and Sacramento rivers. With the completion of the model, SGA now has a reasonable estimate of recharge/discharge along these river reaches.
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.	Complete	The Sacramento Coordinated Water Quality Management Program completes an annual monitoring report including water quality and flow data at several locations along the American and Sacramento Rivers. SGA has obtained the 2002-2003 version of this report. SGA recently obtained the 2006 annual report and will incorporate information into the 2008 update to the SGA BMR.
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.	Complete	In late 2003, the State Board considered stream aquifer interaction along the American River as part of a fully appropriated stream hearing. Consulting studies associated with the report indicate that the American River is a losing stream along nearly its entirety below Nimbus Dam and that the river is substantially disconnected from the groundwater basin. Because of this data becoming available, no additional studies are planned at this time.
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.	On-going	As mentioned above, the results of the fully appropriated streams hearing on the American River in 2003 have made this a low priority item. In 2005, two monitoring wells were installed for SSWD near the American River. Data collected beginning in early 2006 will evaluated to assess these relationships in the 2008 SGA BMR.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
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.	On-going	Met with Dave Evans of CSUS on September 8, 2004. Dr. Evans indicated that several wells on the south side of the river at CSUS are equipped with pressure transducers, which collect continuous water elevation measurements. The data are collected, but have not been processed to date. Dr. Evans expects to bring in a graduate student in the near future to analyze the relationship between stream stage and groundwater elevations. As of June 2007, this work has not progressed from within the university.
2.5	***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.	Complete	Water level measurement protocols are included in Appendix D of the SGA GMP. The final GMP was sent to all member agency General Managers and Directors on January 23, 2004.
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).	Complete	A copy of the DHS guidelines were sent to all member agency General Managers and Directors on January 23, 2004 with the GMP.
3	Provide training on the implementation of these SOPs to member agencies, if requested.	Complete	The cover letter for the GMP and water quality protocols sent to member agencies on January 23, 2004 extending an offer to provide training on protocols.
2.6	***Data Management System***		
	No Action Required		The initial DMS was completed in February 2004. SGA maintains an annual consulting budget item for maintenance and support of the DMS.
COMPONENT CATEGORY 3: GROUNDWATER RESOURCE PROTECTION			
3.1	***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	Complete	Provided each member agency with 2003 revised county well construction and destruction standards on April 6, 2004.
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.	On-going	Met with James Taylor of CVRWQCB on September 13, 2004 and received a copy of the 2004 update to the Sacramento County Special Consultation Zone Ground Water Plume Site report. Informed member agencies at the October 14, 2005 SGA Board meeting that the report is available at SGA and that we will make a future effort scan the maps into an electronic file.
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.	Complete	Submitted a September 1, 2004 letter to member agency managers. Each letter included a map showing the maximum plumes extents in a 2-dimensional map view based on 2002 quarterly monitoring reports for each site (GMP letter to GMs 01sep04.doc).
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.	Complete	Offered assistance to all SGA member managers in letters dated January 23, 2004 and again on April 6, 2004.
3.2	***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	Complete	Provided each member agency with 2003 revised county well construction and destruction standards on April 6, 2004.
2	Follow up with member agencies on the reported abandoned and destroyed wells to confirm the information collected from DWR	Complete	Submitted a September 1, 2004 letter to member agency managers. Each letter included a table of member wells and their current status in the SGA database. The letter requested that member agencies update the well status (GMP letter to GMs 01sep04.doc). The updated status was entered into the DMS.
3	Provide a copy of the information on abandoned and destroyed wells in northern Sacramento County to fill any gaps in their records	On-going	Data received on well status requested from SGA members on September 1, 2004 were input into the SGA data management system in mid-2005 as part of the Basin Management Report update. This information on well status will be forwarded to the Central District office of DWR in 2008.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
4	Meet with the EMD to discuss ways to ensure that wells in the SGA area are properly abandoned or destroyed	Complete	Spoke with Steve Kalvelage of Sac County Environmental Management Department on July 26, 2004. Discussed possibility of preparing grant application under AB 303 for a well destruction program. Met with Dana Booth of EMD on September 7, 2004. Encouraged EMD to develop an AB303 grant application for a well abandonment program. Forwarded the AB303 grant application workshop notification to Dana on October 5, 2004. Coordinated with EMD again in October 2007 to determine if they are ready to pursue a joint grant application with SGA to launch a regional program. EMD indicated that they are still completing work they feel is required to beginning such an effort, and may be ready to pursue a grant opportunity in late 2008.
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.	Complete	An electronic version of the District 6 well location database for the Sacramento area was downloaded and incorporated into a GIS coverage of the SGA area. The DOG records confirm that oil and gas development has been very limited in the SGA area. Almost all activity has been confined to the western one-third of Sacramento County. There are records for only 53 permits issued: 40 are for plugged and abandoned dry holes; 5 active gas holes exist in the vicinity of Sacramento International Airport; 1 steam flood well is active in the vicinity also near the airport; and 7 previous gas wells have been plugged and abandoned (SGA_DOG_map.pdf).
3.3	***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.	Complete	This request was not sent to members, because it was unnecessary. The information for each well is available on-line at http://swap.ice.ucdavis.edu/TSinfo/TSsystemc.asp?myCounty=34.
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	Deferred	Because of limited SGA staff time, this item is being deferred. In 2005, SGA staff coordinated a session on local agency management for the Biennial Groundwater Conference. In addition to SGA, briefings on the activities of Orange County Water District and Eastern Municipal Water District were given. This provided insightful information on differences between management in northern and southern California.
3.4	***Protection of Recharge Areas***		
1	When CAS results are available, meet with the SWRCB to discuss those results and consider follow-on actions.	Complete	Coordinated SWRCB and LLNL presentation to SGA Board of Directors on February 12, 2004. Reviewed LLNL draft report in March 2004. Received final report in April 2004.
3.5	***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.	On-going	Met with Craig Fegan and Steve Costello at Aerojet on August 26, 2004. Aerojet agreed to provide construction, water quality and water elevation data on approximately 77 monitoring wells within and adjacent to the SGA boundary. They will provide updated data on those wells on a semi-annual basis. Spoke to Dana Booth with Sac County Environmental Health on July 27, 2004 and again on September 7, 2004. Dana is in charge of leaking underground storage tank site investigations. He indicated that some of the locations might be willing to member agencies to collect a split water sample during active investigations for the purposes analyzing other constituents of interest to local purveyors. One result of the current 2007 AB303 grant application will be to identify priority locations for sentry wells related to contamination at Aerojet.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
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	An SGA Regional Contamination Issues Committee was formed in June 2004. This committee works proactively to ensure that member purveyor needs are addressed if detections occur. The committee has meets monthly or on an as-needed basis. Committee met with regulators and Aerojet responsible parties to get briefing of status of remediation efforts at Aerojet on October 4, 2004. Met with management and staff of USEPA, SWRCB, Central Valley RWQCB, DTSC, Water Forum Successor Effort, and purveyors on November 4, 2004 and again in November 2006 to express concerns over regional impacts of contamination in basin. Developed an informational brochure entitled *Groundwater Contamination in the Sacramento Region - Legacy of the Past, Challenge to Our Future* in early 2006. Gave SGA overview presentation to McClellan Restoration Advisory Board in February 2007
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	Complete	Spoke to Dana Booth with Sac County Environmental Health on July 27, 2004. He recommended that rather than prepare a static map of these locations that SGA should develop a procedure for querying the GeoTracker web site and consulting with Sac County staff when locating future wells. The directions for using Geotracker were developed by SGA staff and provided to member agency managers in a September 1, 2004 letter (GMP letter to GMs 01sep04.doc).
4	Meet with representatives of the RWQCB to establish a mutual understanding about SGA's groundwater management responsibilities	Complete	Met with Central Valley Regional Water Quality Control Board staff on February 26, 2004. Briefed them on SGA background, SGA GMP, and DMS. RWQCB added SGA to mailing list for updates on underground storage tank sites.
3.6	***Control of Saline Water Intrusion***		
1	Track the progression, if any, of saline water bodies moving toward the east from the Delta.	On-going	Will work with DWR Central District staff to determine if any representative wells are located in the north Delta area to assist in tracking of any possible saline groundwater bodies.
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	To be assessed in future Basin Management Reports as more temporal data become available.
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	No action on this item will be taken until after SGA staff have had an opportunity to discuss the TDS data from the Delta with DWR Central District staff.
COMPONENT CATEGORY 4: GROUNDWATER SUSTAINABILITY			
4.1	***Conjunctive Management Activities***		
1	Continue to investigate conjunctive use opportunities within the SGA area	On-going	SGA will assist any members upon request. Currently, the Integrated Regional Water Management Planning Program is an on-going program under the RWA umbrella. This program identifies opportunities and facilities for implementing expanded conjunctive use in the region. SGA is preparing a Water Accounting Framework for the SGA area through participating members can establish groundwater banks to further promote conjunctive use by members and to acknowledge those investments by members. Phase II of this effort was adopted in June 2007, with staff currently preparing a "model" groundwater banking and exchange guidance documents for member agencies to use should they choose to operate a program.

SGA Adopted GMP Action Items
(as of 12/11/08)

	Description of Action	Status	Comments
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	SGA has been closely coordinating with the City of Roseville in its feasibility study of an aquifer storage and recovery well. Some SGA members have indicated an interest for use of this methodology pending results of the Roseville study.
4.2	***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	Signatories to the Water Forum Agreement are currently completing a review and renegotiation of existing best management practices for water conservation. That effort is expected to be completed by early 2008 with a likely conclusion of adopting BMPs developed by the California Urban Water Conservation Council.
2	Coordinate with SRCSD through the RWA to investigate opportunities for expanded use of recycled water throughout the county.	On-going	SRCSD completed a recycled water master plan effort in early 2007. One of the goals of the plan is to identify uses in the County for between 30 to 40 mgd of recycled water by the year 2020. SRCSD also joined an RWA effort to complete an Integrated Regional Water Management Plan. The results of the SRCSD effort will be integrally linked to the RWA planning effort. SGA has received a copy of the recycled water master plan.
COMPONENT CATEGORY 5: PLANNING INTEGRATION			
5.1	***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.	Complete	RWA began an Integrated Regional Water Management Planning Program in April 2004. RWA adopted an integrated plan in May 2006. The SGA, PCWA, and City of Lincoln GMPs were each a component of the integrated plan. RWA is currently updating the plan, with an expected completion in mid-2008. SGA is closely coordinating with this effort to elevate key groundwater issues into the IRWMP.
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.	Complete	Reviewed the February 2002 Final Draft: Relationship of the Water Forum Agreement to Land Use Decision-Making with the GMP Implementation Committee. At the direction of the committee, sent an August 18, 2004 letter to Leo Winternitz, Water Forum Successor Effort Executive Director, expressing our continued support of SGA's role in providing groundwater information within the SGA area as requested (land use to Winternitz 10aug04.doc).

Appendix C

Public Notices to Begin and Adopt an Updated GMP in Sacramento Bee

NO 483 PUBLIC NOTICE

NOTICE OF INTENT TO BEGIN AN UPDATE OF A GROUNDWATER MANAGEMENT PLAN

The Sacramento Groundwater Authority (SGA) is a joint powers authority charged with managing the groundwater basin underlying Sacramento County north of the American River. To maintain a sustainable groundwater resource for the more than half-million citizens that rely upon the basin for their daily water needs, SGA intends to begin an update of its groundwater management plan originally adopted in December 2003. SGA encourages any individual interested in the update of the groundwater management plan to attend the August 14, 2008 meeting of the SGA board of directors. The meeting, which is open to the public, will begin at 9 am at 5620 Birdcage Street, Suite 110 in Citrus Heights, CA. For more information on SGA Board meetings or to find out more about groundwater management planning efforts, contact Rob Swartz of SGA at (916) 967-7692.

NOTICE OF INTENT TO ADOPT AN UPDATE OF A GROUNDWATER MANAGEMENT PLAN

The Sacramento Groundwater Authority (SGA) is a joint powers authority charged with managing the groundwater basin underlying Sacramento County north of the American River. To maintain a sustainable groundwater resource for the more than half-million citizens that rely upon the basin for their daily water needs, SGA intends to adopt an update of its groundwater management plan originally adopted in December 2003. SGA encourages any individual interested in the update of the groundwater management plan to attend the December 11, 2008 meeting of the SGA board of directors. The meeting, which is open to the public, will begin at 9 am at 5620 Birdcage Street, Suite 110 in Citrus Heights, CA. For more information on SGA Board meetings or to find out more about groundwater management planning efforts, contact Rob Swartz of SGA at (916) 967-7692.

Appendix D

Standard Operating Procedures for Manual Water Level Measurements

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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 SGA'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, ect.). 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:

where:

$$\mathbf{E_w = E - D}$$

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

Driscoll, F.G. 1986. Groundwater and Wells. Second Edition. Chapter 16. *Collection and Analysis of Pumping Test Data.* pp 534-579. Johnson Filtration Systems Inc. St. Paul, Minnesota.

U.S. Environmental Protection Agency (USEPA), 1986. RCRA Groundwater Monitoring Technical Enforcement Guidance Document, pp. 207.

USEPA, 1987, A Compendium of Superfund Field Operations Methods. EPA/540/p-87/001 Office of Emergency and Remedial Response Washington, D.C. 20460.

USEPA, 2000. Environmental Response Team SOP 2043, 10 pages Feb. 11 2000.

SGA

Appendix H

Documentation of Water Use Projections Submittal

FAIR OAKS
WATER DISTRICT

RECEIVED
BY KENNEDY/JENKS
AUG 22 2011
SACRAMENTO

18 August 2011

Robert Seyfried
Senior Civil Engineer
Water Quality/Policy & Planning Division
Sacramento County Regional Sanitation District
10545 Armstrong Avenue
Mather, CA 95655

Subject: Fair Oaks Water District
2010 Urban Water Management Plan Preparation Notification and Information Request

Dear Robert:

Fair Oaks Water District (FOWD) is currently in the process of preparing and updating its 2010 Urban Water Management Plan (UWMP) as required by State of California through the Urban Water Management Planning Act. The UWMP process is intended to be a collaborative effort between all project stakeholders to the extent practicable. You are being contacted since Sacramento Regional County Sanitation District (SRCSD) provides wastewater collection and/or treatment and disposal service for customer's within the FOWD service area. This letter serves as your official notice of preparation of the UWMP for FOWD and request as required by the UWMP Act for updates and clarification of details regarding your historical and future potential recycled water use within the FOWD service area. For your reference, we have enclosed figures showing the system location and the 2005 UWMP Recycled Water Plan chapter containing information SRCSD and FOWD collaboratively prepared. We would be happy to provide you with a complete electronic copy of the 2005 UWMP at your request.

Please provide or update the information listed below. If there is no update, or additional discussion is required between FOWD and your agency, please state so. Please also submit any pertinent backup documentation that may be required for a complete understanding of the recycled water usage planning within the FOWD system.

1. A description of your wastewater collection and treatment systems; including the amount of wastewater collected and treated and the methods of disposal.

10326 Fair Oaks Boulevard
P.O. Box 640
Fair Oaks, CA 95628-0640
Tel: (916) 967-5723
Fax: (916) 967-0153
www.fowd.com

2 A description of the quantity of treated wastewater:
   a. that meets recycled water standards and is being discharged
   b. is available for use in recycled water projects
   c. A description of recycled water currently being used in the FOWD service area.
   d. Including place and quantity
3 A description and quantity of potential uses of recycled water including; agricultural irrigation, landscape irrigation, wildlife habitat enhancement, and other appropriate uses. Also provide the technical and economic feasibility of serving those uses.

4 What is the projected use of recycled water within the FOWD service area at the end of 5, 10, 15, 20, and 25 years?

5 What actions are being taken to encourage the use of recycled water and the projected results in terms of acre-feet of recycled water used per year?

6 Is there a plan for optimizing the use of recycled water within the FOWD service area? If so please describe.

We appreciate timely attention to the information requested above and ask you provide your responses no later than **26 August 2011.** Kennedy/Jenks Consultants is responsible for preparation of the UWMP updates for FOWD and will be contacting you directly within the next few weeks to follow up on this request. In the meantime, should you have any questions or concerns please feel free to contact me at (916) 844-3513 or mnisenboym@fowd.com or Sean Maguire with Kennedy/Jenks Consultants at seanmaguire@kennedyjenks.com or (916) 858-2700.

Very truly yours,

FAIR OAKS WATER DISTRICT

Michael Nisenboym, P.E.
Operations Manager

Enclosures

cc: Sean Maguire, Kennedy/Jenks Consultants

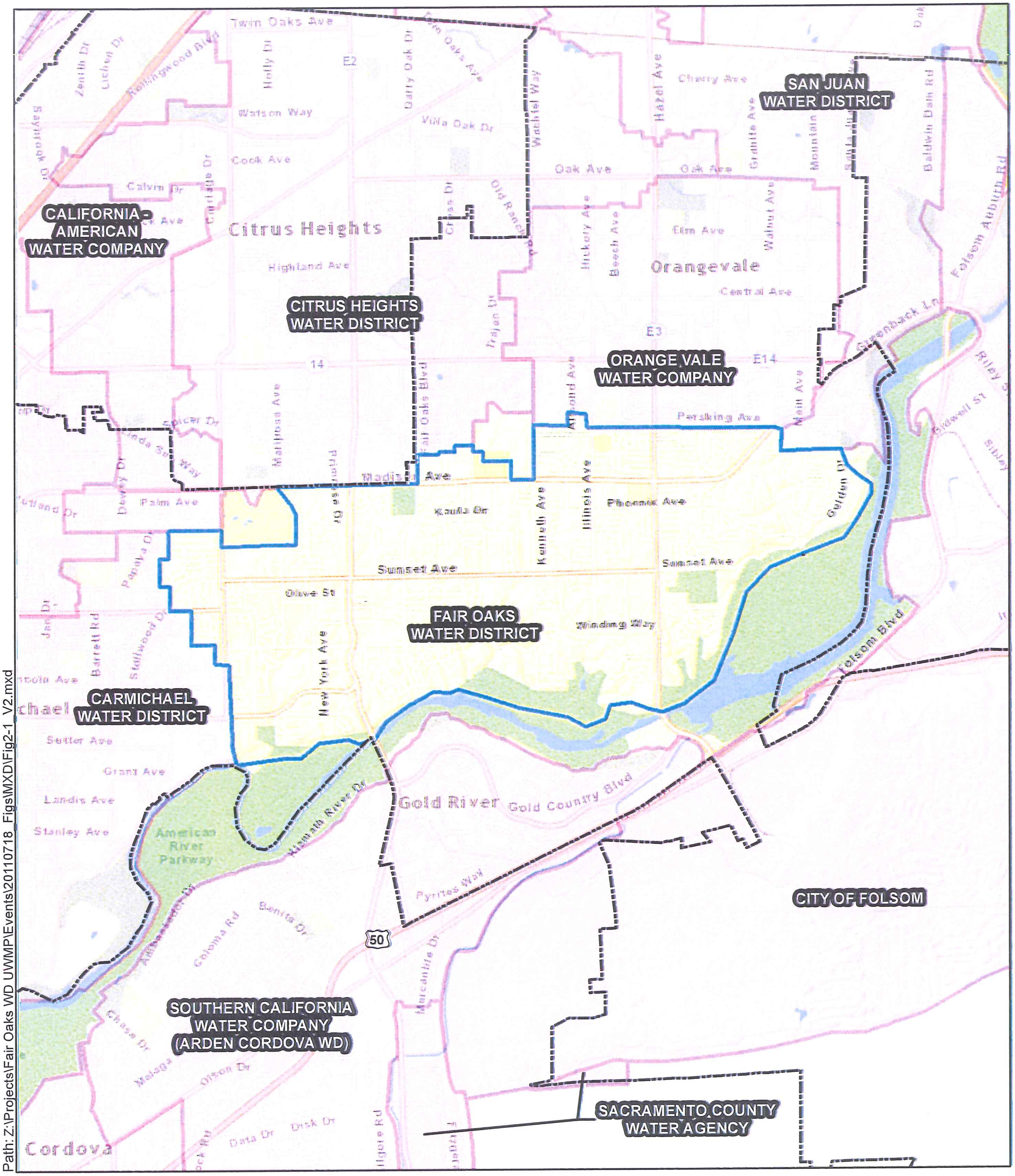

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Image Source: ESRI

Legend

- Fair Oaks Water District Boundary
- Water Purveyor Boundary
- City Boundary

N

0 3,000 6,000

Feet

Kennedy/Jenks Consultants

Fair Oaks Water District
2010 Urban Water Management Plan

Fair Oaks Water District Service Area

K/J 1170028*00
August 2011

Figure 2-1

Section 8 – Water Recycling

This section provides information on recycled water and its potential for use as a water source in the District's service area. Currently recycled water is not used within the District; however, the District supports the use of recycled water regionally throughout the Sacramento area. Because the use of recycled water within the District has not changed since 2001, a significant portion of this section is repeated from the 2001 Plan. Where applicable, contents of the section were updated and additional information was provided.

Recycled Water in California

The demand for suitable water supplies will continue to increase as population within California reaches an estimated 52 million in the year 2030.[51] In order to account for the growing need, California has recognized the importance of recycled water in the management of the State's overall water supply. Recycled water augments the dependence on freshwater for uses such as irrigation, industrial uses, and agricultural uses. Reuse opportunities in California will increase in the future as technological improvements reduce treatment costs and public perception improves.

In April 2002, the 2002 Recycled Water Task Force (task force) was formed by DWR as directed by Assembly Bill No. 331. The task force identified the opportunities and the constraints for increasing the use of recycled water in California.[52] The task force identified 26 issues and provided general recommendations for actions that should be implemented by the State or local agencies to increase its recycled water usage. The task force estimated that California has the potential to increase its use of recycled water by 1.5 million acre-feet per year by 2030 if appropriate funding is made available.[53]

The Water Recycling Act of 1991 set California water recycling goals at 700,000 acre-feet a year by 2000 and 1 million acre-feet by 2010. The most recent survey conducted by SWRCB in 2002 indicates that the 2000 goal was not attained. Through the end of 2001, California's recycled water usage was estimated to be 525,000 acre-feet. Because of increased applications for recycled water, DWR believes that the 2010 goal will be met or even exceeded.[54] Uses of recycled water within California include agricultural irrigation, landscape irrigation and impoundment, groundwater recharge, recreational impoundment, seawater barrier, industrial use, and wildlife habitat. Agricultural and landscape irrigation are the largest uses of recycled water.

One of the recommendations from the task force was to increase funding opportunities. The SWRCB, through the Division of Financial Assistance, provides financial assistance for water recycling projects. The SWRCB promotes the use of recycled water by providing assistance in the form of low-interest loans and/or grants for construction and planning

[51] DWR, Water Recycling 2030, Recommendations of California's Recycled Water Task Force, June 2003.
[52] Draft California Water Plan Update 2005 Volume 2 – Resource Management Strategies. Chapter 16.
[53] DWR, Water Recycling 2030, Recommendations of California's Recycled Water Task Force, June 2003.
[54] DWR, Water Facts No 23 – Water Recycling, October 2004.

projects. Recently, the SWRCB accepted applications for approximately $42 million in construction grant funding provided by Proposition 50. The SWRCB received 45 applications totaling approximately $127 million; however, only 25 applications were complete for a total of $59 million. Of the 25 applications, 10 were for counties within Northern California and include projects within Glenn, Santa Clara, Contra Costa, Napa, Alameda, and San Mateo Counties.

Wastewater in Sacramento County

The Sacramento Regional Wastewater Treatment Plant (SRWTP), owned and operated by the Sacramento Regional County Sanitation District (SRCSD), collects and treats the wastewater generated from the Sacramento region. The regional plant serves the entire Sacramento metropolitan area including the unincorporated county area adjacent to the City of Sacramento, the City of Citrus Heights, the City of Elk Grove, the City of West Sacramento, and the City of Folsom. The service area covers 250 square miles and includes over 80 miles of interceptors conveying wastewater to the SRWTP.[55]

The SRWTP treats wastewater through secondary treatment and disinfection. The primary treatment includes screens, aerated grit chambers and sedimentation tanks. The secondary treatment process includes carbonaceous oxidation tanks and clarifiers. The final step includes the addition of chlorine for disinfection and sulfur dioxide to neutralize the chlorine prior to disposal. The treated wastewater is discharged to the Sacramento River south of the Freeport bridge.

The SRWTP receives and treats an average of 165 mgd of dry weather flow, however the treatment capacity is approximately 400 mgd to handle peak wet weather flows.[56] According to SRCSD staff, the average dry weather flow was 147 mgd in 2004. Currently, the permitted capacity of the SRWTP is 181 mgd of average day weather flow.[57] SRCSD has submitted an application to the RWQCB to renew their National Pollutant Discharge Elimination System (NPDES) discharge permit and increase the permitting capacity to the estimated 2020 average day weather flow of 218 mgd.

SRCSD has completed a 2020 Master Plan that provides a phased program of recommended facilities to accommodate planed growth while maintaining treatment reliability, meeting future regulatory requirements, and optimizing costs. The Final EIR for the 2020 Master Plan was certified in the summer of 2004. Because the 2020 Master Plan only projects out to 2020, future discharge projections are not available for 2025 and 2030. Table 31 projects the amount of treated wastewater (average dry weather flow) to be discharged to the Sacramento River through 2020. The 2020 Master Plan does mention that future average dry weather flows to the SRWTP are expected to reach 350 mgd at plant build-out.

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[55] SRCSD website, www.srcsd.com
[56] SRCSD brochure available online at www.srcsd.com
[57] Tetra Tech, Inc. Phase I Title XVI Feasibility Analysis for County Wide Water Recycling Program, 2002. Prepared for SRCSD and USBR.

Table 31 – Disposal of Treated Wastewater (non-recycled)

Year	Treated Wastewater Disposed to Sacramento River (mgd)
2005	174
2010	196
2015	210
2020	218

Source: SRCSD

Wastewater Generated in the District

Municipal wastewater is generated in the District's service area from a combination of residential and commercial sources. The quantities of wastewater generated are generally proportional to the population and the water use in the service area. Although SRCSD does not meter the amount of wastewater generated from within the District's service area, SRCSD was able to provide an estimate of wastewater flow based on parcel information. Individual parcels were provided to SRCSD to be used as input in SRCSD's hydraulic model.[58] Using existing and predicted land use information, SRCSD estimated wastewater flows for the existing and build-out situation. Estimates of the wastewater flows in the District are included in Table 32.

Table 32 – Wastewater Collected and Treated

Year	Wastewater Collected within the District (acre-feet/year)
2000	4,435
2005	5,020
2010	5,800
2015	6,580
2020	7,360
2025	7,360
2030	7,360

Note: Build-out is assumed to occur in 2020. Year 2010 was interpolated between the existing (2005) and build-out estimate.

Water Recycling by the SRCSD

In 1999, the SRCSD began construction of a 5 mgd water recycling plant as Phase I of the SRCSD Water Recycling Program. The water recycling plant further treats the secondary effluent from the SRWTP with sand filtration and disinfection to meet the recycled water demands in the vicinity of the SRWTP. The water recycling plant began producing and distributing disinfected tertiary water to the Elk Grove/Laguna area in April 2003. The recycled water is used at parks, schoolyards, business landscapes and streetscapes in the Laguna West, Lakeside, and Stonelake communities and for industrial uses at the SRWTP. Currently there are 40 user sites with additional connections planned for 2006. Phase I

[58] SRCSD's hydraulic model is called Infoworks by Wallingford Software.

recycled water usage has reached a peak operation of 3.0 mgd and average daily water recycling usage in the range of 1.0 – 1.5 mgd.[59]

The water recycling plant is capable of being expanded to 10 mgd to serve additional demand for landscape irrigation as Phase II. SRCSD is currently conducting pilot tests to evaluate the most efficient treatment technology to use in the expansion of the plant. The results of the pilot tests are anticipated in 2006. Most of the recycled water demand will be landscape irrigation for recent developments south of the plant within the Elk Grove/Laguna Community (East Franklin and Laguna Ridge developments). Phase II of the SRCSD Water Recycling Program is expected to be in service by 2008 – 2010.

In addition to the proposed 10 mgd water recycling plant, SRCSD is completing a Water Recycling Master Plan to plan for recycled water growth in the Sacramento area through 2030. SRCSD's Water Recycling Master Plan will be updated in 2006 and will discuss water recycling project alternatives that will enable SRCSD to meet a peak recycled water usage goal of 30 to 40 mgd.

Coordination of Recycled Water in Fair Oaks Water District

The SRCSD has taken steps to promote and expand the use of recycled water, but these steps to date have been focused on areas adjacent to the SRWTP. SRCSD has completed a number of recycled water studies including:

- Sacramento County Water Reclamation Study (August 1994) – This report identified recycled water markets within Sacramento County and facilities that would be needed to serve those areas.
- Plan of Study, Sacramento County Water Reclamation and Reuse Project (December 1997) – This study developed an approach to facilitate a countywide water recycling project between SRCSD and USBR.
- Appraisal Report for the Sacramento County Water Reclamation and Reuse Project (February 1998) – This report identified issues, constraints, and benefits related to implementing a large-scale water recycling program in Sacramento County.
- Title XVI Feasibility Analysis for Phase I Countywide Water Recycling Program (January 2002) – This report identifies water reuse opportunities within Sacramento County and provides a description and cost analysis of the alternatives.

Of the reports listed above, only the Sacramento County Water Reclamation Study prepared in 1994 evaluated the feasibility of recycled water use within the District.

[59] SRCSD, SRCSD Water Recycling Urban Water Management Plan Language, September 15, 2005.

Potential Uses of Recycled Water within the District

The Sacramento County Water Reclamation Study prepared in 1994 initiated an evaluation of the feasibility of recycled water use within the urban water districts of Sacramento County. Various markets for recycled water including agricultural irrigation, urban landscape irrigation, industrial water, groundwater recharge, and wetland enhancement were evaluated using economic and non-economic criteria. The report identified 27 users within the District that could utilize recycled water such as schools, parks, and churches. The total estimated demand was 806 acre-feet per year in 1994.[60] These demands do not include residential landscape irrigation. Although 27 users were identified within the District service area, it is possible some of the users receive water from sources other than the District such as private groundwater wells. If recycled water was used at these sites, the total water demand of the District would not be reduced.

Although a potential recycled water demand of 806 acre-feet was identified within the District, the number may be much less based on dedicated irrigation accounts. Since 2002, the District has reported 67 metered accounts for dedicated irrigation and 21 institutional accounts to the CUWCC. The total amount of water delivered to these users has ranged from 327 to 346 acre-feet.[61] The potential for recycled water demand is not anticipated to increase since the District is close to build-out and schools and parks are already in place.

Projected Future Use of Recycled Water within the District

The extent to which recycled water is available in the future in the District's service area depends on the growth of the SRCSD recycled water program. In the short-term, recycled water is not a viable option to reduce the District's total water demand because it is a significant distance from the source of recycled water at SRWTP. The cost of conveying recycled water to the District's service area from the regional plant would be prohibitively expensive.[62] Therefore, future use of recycled water within the District is not anticipated through 2030.

The only feasible way recycled water could be available to the District would be if SRCSD built a satellite water reclamation facility north of the American River. However, it is unlikely that satellite reclamation plants would be built in the foreseeable future as part of SRCSD's water recycling program. SRCSD is near completion on a recycled water master plan and there are no plans for a satellite treatment near the District. A satellite treatment plant near the District was also not recommended in the SRCSD's 2020 Master Plan.

Because SRCSD is not currently, nor in the foreseeable future, considering a water recycling program for the areas north of the American River in Sacramento County, it is not practicable to provide a recycled water optimization plan that includes actions to facilitate the installation of dual distribution systems and promote recycled water uses. Without plans by

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60 Nolte and Associates, Sacramento County Water Reclamation Study Volume 2, 1994.
61 Annual Reports to CUWCC for 2002, 2003, and 2004.
62 Nolte and Associates, Sacramento County Water Reclamation Study Volume 1, 1994.

SRCSD to construct satellite reclamation plants, use of recycled water to meet water demands in the District does not appear feasible.

2000 Projection Compared to 2005 Actual Use

Since the 2001 Plan, the recycled water supplies to the District have not changed. The projections for recycled water usage within the District in the 2001 Plan were consistent with actual use. Again, recycled water is not currently or anticipated to be used within the District.

Appendix I

Summary of Population Based on Census Data

Table I-1: Population Totals for Fair Oaks Water District

Data Source: 2000 Census

Geographical Boundary: Census Tract

Census Tract	Percentage of Tract in System	County	Census Designated Place	2000 Population
007904	35%	Sacramento	Carmichael	1,828
007905	9%	Sacramento	Carmichael	384
008005	100%	Sacramento	Fair Oaks	5,207
008006	100%	Sacramento	Fair Oaks	5,579
008007	100%	Sacramento	Fair Oaks	3,494
008008	100%	Sacramento	Fair Oaks	4,577
008009	100%	Sacramento	Fair Oaks	4,338
008010	100%	Sacramento	Fair Oaks	4,812
008122	22%	Sacramento	Fair Oaks	731
008138	0%	Sacramento	Citrus Heights	12
008139	0%	Sacramento	Citrus Heights	4
008204	46%	Sacramento	Orangevale	2,054
008206	31%	Sacramento	Orangevale	1,694
008207	50%	Sacramento	Orangevale	2,237
Total				**36,951**

Population Totals for Fair Oaks Water District

Data Source: 2010 Census

Geographical Boundary: Census Tract

Census Tract	Percentage of Tract in System	Area of Tract in FOWD (Sq. Ft.)	2010 Population	
			Total	in CSA
7904	35%	8608206	4,797	1,696
7905	9%	2475025	4,225	398
8005	100%	40750656	4,715	4,715
8006	100%	53798432	5,718	5,718
8007	100%	15093699	3,151	3,151
8008	100%	32590227	4,610	4,609
8009	100%	45072608	4,407	4,407
8010	100%	42542469	4,890	4,890
8122	22%	4986714	3,384	728
8138	0%	62946	3,568	12
8139	0%	17906	3,360	4
8204	46%	12776314	4,495	2,054
8206	31%	9342604	5,638	1,735
8207	50%	16539520	4,212	2,106
Total			61,170	**36,221**

2010 Population based on Census Blocks	**36,226**

Table I-1: Census Tracts within the Fair Oaks System

County	City	TAZ	Percentage of TAZ in System
Sacramento	Orangevale	403	9%
Sacramento	Orangevale	406	65%
Sacramento	Fair Oaks	407	18%
Sacramento	Orangevale	408	100%
Sacramento	Citrus Heights	409	100%
Sacramento	Citrus Heights	410	100%
Sacramento	Orangevale	411	100%
Sacramento	Fair Oaks	412	100%
Sacramento	Fair Oaks	413	100%
Sacramento	Fair Oaks	414	100%
Sacramento	Fair Oaks	415	100%
Sacramento	Fair Oaks	416	100%
Sacramento	Fair Oaks	417	100%
Sacramento	Fair Oaks	418	100%
Sacramento	Fair Oaks	419	90%
Sacramento	Fair Oaks	420	100%
Sacramento	Fair Oaks	421	100%
Sacramento	Fair Oaks	422	100%
Sacramento	Fair Oaks	423	100%
Sacramento	Carmichael	447	20%
Sacramento	Fair Oaks	461	48%
Sacramento	Fair Oaks	462	44%
Sacramento	Fair Oaks	464	80%
Sacramento	Fair Oaks	465	37%

Table I-2: Population, Household and Employment Projections for the Fair Oaks System

			Population							Households							Employment						
TAZ	County	City	2005	2010	2015	2020	2025	2030	2035	2005	2010	2015	2020	2025	2030	2035	2005	2010	2015	2020	2025	2030	2035
403	Sacramento	Orangevale	363	363	363	366	370	374	377	154	154	154	154	156	158	159	24	24	24	24	25	25	25
406	Sacramento	Orangevale	896	892	892	898	907	915	924	365	365	365	366	369	372	375	227	227	227	228	231	233	236
407	Sacramento	Fair Oaks	388	398	405	407	410	412	415	172	176	178	179	180	181	182	21	26	28	28	28	28	28
408	Sacramento	Orangevale	1,713	1,752	1,787	1,809	1,818	1,826	1,834	731	749	759	761	766	772	777	135	135	135	135	135	136	136
409	Sacramento	Citrus Heights	1,257	1,248	1,243	1,250	1,262	1,275	1,287	501	501	501	501	504	506	508	48	48	48	52	61	70	80
410	Sacramento	Citrus Heights	1,246	1,252	1,252	1,260	1,293	1,326	1,359	523	523	523	528	541	553	565	912	912	912	914	920	926	931
411	Sacramento	Orangevale	3,001	3,008	3,015	3,025	3,040	3,054	3,069	1,192	1,193	1,194	1,197	1,205	1,212	1,220	43	43	43	44	47	50	53
412	Sacramento	Fair Oaks	1,336	1,337	1,341	1,355	1,377	1,398	1,419	529	529	529	535	549	563	578	48	46	46	47	50	53	56
413	Sacramento	Fair Oaks	1,333	1,334	1,332	1,353	1,409	1,466	1,522	531	531	531	539	560	580	601	212	212	212	234	289	344	399
414	Sacramento	Fair Oaks	1,792	1,785	1,780	1,778	1,778	1,779	1,779	759	759	759	760	761	762	764	717	717	732	754	754	754	754
415	Sacramento	Fair Oaks	2,290	2,294	2,523	2,865	2,869	2,874	2,878	1,053	1,053	1,183	1,380	1,383	1,386	1,388	1,922	1,853	1,911	2,060	2,060	2,060	2,060
416	Sacramento	Fair Oaks	2,133	2,139	2,201	2,290	2,299	2,307	2,315	925	925	949	986	987	989	990	65	65	65	65	65	65	65
417	Sacramento	Fair Oaks	1,558	1,566	1,570	1,574	1,586	1,599	1,611	624	624	626	630	634	638	643	54	53	52	52	53	54	55
418	Sacramento	Carmichael	2,589	2,595	2,628	2,676	2,685	2,695	2,704	1,043	1,047	1,064	1,087	1,090	1,092	1,095	922	922	922	923	925	928	931
419	Sacramento	Fair Oaks	2,106	2,104	2,107	2,149	2,237	2,325	2,414	912	912	912	928	967	1,006	1,045	1,572	1,572	1,572	1,576	1,586	1,596	1,606
420	Sacramento	Carmichael	2,343	2,347	2,384	2,437	2,446	2,454	2,462	1,004	1,004	1,017	1,037	1,039	1,042	1,044	350	350	350	352	357	361	366
421	Sacramento	Fair Oaks	1,964	1,966	1,985	2,019	2,035	2,052	2,069	839	839	848	865	872	880	887	714	712	711	711	711	711	711
422	Sacramento	Fair Oaks	1,612	1,610	1,612	1,625	1,639	1,653	1,667	707	707	708	711	716	722	727	271	271	273	276	276	276	276
423	Sacramento	Fair Oaks	531	527	535	550	547	543	539	230	230	230	230	230	230	230	121	120	119	119	119	119	119
447	Sacramento	Carmichael	645	667	760	880	881	881	882	281	288	328	382	382	383	383	90	89	97	110	110	110	110
461	Sacramento	Fair Oaks	829	819	853	915	916	917	918	325	325	341	365	365	366	366	104	104	134	179	180	181	181
462	Sacramento	Fair Oaks	933	931	931	935	943	951	958	373	373	373	374	376	379	381	257	257	257	263	278	292	307
464	Sacramento	Fair Oaks	2,063	2,059	2,055	2,057	2,067	2,077	2,087	783	783	783	784	787	790	792	170	170	170	170	169	168	167
465	Sacramento	Fair Oaks	1,190	1,198	1,286	1,417	1,435	1,453	1,470	472	476	517	576	584	592	599	248	269	285	296	312	328	343
Total Population Based on SACOG			36,112	36,189	36,841	37,891	38,247	38,603	38,959	15,027	15,066	15,372	15,857	16,004	16,152	16,300	9,247	9,197	9,325	9,612	9,739	9,866	9,993
SACOG Growth Rate					1.8%	2.8%	0.9%	0.9%	0.9%			2.0%	3.2%	0.9%	0.9%	0.9%			1.4%	3.1%	1.3%	1.3%	1.3%

Note: 1) UWMP Population data uses the 2010 Census data.

Appendix J

Fair Oaks Water District Policy No. 6060 Water Conservation

FAIR OAKS
WATER DISTRICT

Policy Number:	**6060**
Policy Title:	**Water Conservation**

MANDATORY REQUIREMENTS: STAGES 1 - 5

WATER CONSERVATION STAGE DECLARATION:

Upon declaration or amendment by the Board of Directors of a specific Stage in effect, the following mandatory water conservation requirements shall be in effect.

The declaration of short-term stage 4 or stage 5 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

STAGE 1 – NORMAL WATER SUPPLY

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired within five (5) working days or less if warranted by the severity of the problem.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

STAGE 2 – WATER ALERT

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired within five (5) working days or less if warranted by the severity of the problem.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce landscape and pasture irrigation by 5 – 10%. Customers with 'smart" irrigation timers or controllers are asked to set their controllers to achieve 90 to 95% of the evapotranspiration (ET) rate. Drip irrigation systems are excluded from this requirement.

9. Reduce indoor water use by 5 – 10%. Contact your water provider for tips and techniques to reduce indoor water use.

10. Users of construction meters and fire hydrant meters will be monitored for efficient water use.

STAGE 3 – WATER WARNING

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired within two (2) working days or less if warranted by the severity of the problem.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce landscape and pasture irrigation by 11 – 25%. Customers with 'smart" irrigation timers or controllers are asked to set their controllers to achieve 75 to 89% of the evapotranspiration (ET) rate. Drip irrigation systems are excluded from this requirement.

9. Reduce indoor water use by 11 – 25%. Contact your water provider for tips and techniques to reduce indoor water use.

10. Restaurants shall serve water only upon request.

11. Users of construction meters and fire hydrant meters will be monitored for efficient water use.

STAGE 4 – WATER CRISIS: SHORT-TERM

The declaration of Short-Term Stage 4 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds and fountains is prohibited.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce landscape and pasture irrigation by 26 – 50%. Customers with 'smart" irrigation timers or controllers are asked to set their controllers to achieve 50 to 74% of the evapotranspiration (ET) rate. Drip irrigation systems are NOT excluded from this requirement.

9. Reduce indoor water use by 26 – 50%. Contact your water provider for tips and techniques to reduce indoor water use.

10. Restaurants shall serve water only upon request.

11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.

12. Users of construction meters and fire hydrant meters will be monitored for efficient water use. Use of reclaimed water for construction purposes is encouraged.

13. Installation of new turf or landscaping is prohibited.

14. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.

STAGE 4 – WATER CRISIS: LONG-TERM

The declaration of Long-Term Stage 4 water conservation requirements will be declared by the agency's Board of Directors in a regular or special session. A Long-term declaration is for water shortage conditions expected for a duration of more than 45 days.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds and fountains is prohibited.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce landscape and pasture irrigation by 26 – 50%. Customers with 'smart" irrigation timers or controllers are asked to set their controllers to achieve 50 to 74% of the evapotranspiration (ET) rate. Drip irrigation systems are NOT excluded from this requirement.

9. Reduce indoor water use by 26 – 50%. Contact your water provider for tips and techniques to reduce indoor water use.

10. Restaurants shall serve water only upon request.

11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.

12. Water for flow testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. Use of reclaimed water for construction purposes is encouraged.

13. Installation of new turf or landscaping is prohibited.

14. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.

15. Water Crisis/Emergency tiered pricing will be implemented.

16. No commitments will be made to provide service for new water service connections.

STAGE 5 – WATER EMERGENCY: SHORT-TERM

The declaration of Short-Term Stage 5 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Landscape and pasture irrigation is prohibited.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds and fountains is prohibited.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce indoor water use by more than 50%. Contact your water provider for tips and techniques to reduce indoor water use.

9. Restaurants shall serve water only upon request.

10. Water flow for testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. No potable water from the District's system shall be used for construction purposes including but not limited to dust control, compaction, or trench jetting. Use of reclaimed water for construction purposes is encouraged.

11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.

12. Installation of new turf or landscaping is prohibited.

13. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.

STAGE 5 – WATER EMERGENCY: LONG-TERM

The declaration of Long-Term Stage 5 water conservation requirements will be declared by the agency's Board of Directors in a regular or special session. A Long-term declaration is for water shortage conditions expected for a duration of more than 45 days.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.

2. Landscape and pasture irrigation is prohibited.

3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.

4. Leaking customer pipes shall be repaired immediately. Water service will be suspended until repairs are made.

5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for commercial and multi-family residential ornamental ponds and fountains is prohibited.

6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.

7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

8. Reduce indoor water use by more than 50%.

9. Restaurants shall serve water only upon request.

10. Water flow for testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. No potable water from the District's system shall be used for construction purposes including but not limited to dust control, compaction, or trench jetting. Use of reclaimed water for construction purposes is encouraged.

11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.

12. Installation of new turf or landscaping is prohibited.

13. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.

14. New connections to the District water distribution system will not be allowed.

15. Water Crisis/Emergency tiered pricing will be implemented.

16. No commitments will be made to provide service for new water service connections.

ENFORCEMENT

The District shall terminate water service to the property of a customer who receives two violations for noncompliance with conditions set forth herein. ***In addition, as a condition of water service, the District shall require the installation of a water meter, and shall charge the approved metered service and commodity rate for water based on the actual volume of deliveries, as measured by a water meter.***

1. Upon observation by authorized District personnel of a water waste condition, the District shall issue a warning with the first two observations by personal service or by notice left on premises requesting compliance with the District's conservation rules.

2. Upon observation by authorized District personnel of a third water waste condition at the same property address, the customer shall be issued a violation by personal service or by notice left on premise and a copy mailed to customer at the premises. The customer shall be notified, in writing, that if an additional observation of water waste is documented, the District shall issue a 2nd violation notice, ***require the installation of a water meter,*** and begin termination actions of water service to the subject address. In lieu of service termination, the District may opt to impose a penalty charge for water waste. The District shall indicate in writing said penalty charge, if applicable***, and shall include the approved metered service and commodity rates*** in the violation notice. If the customer is not the property owner, a copy of the writing shall be mailed to the owner of record.

3. Upon observation by authorized District personnel of a fourth, or subsequent water waste condition at the same property address, the customer shall be issued a violation notice by personal service or by notice left on premises and a copy mailed to the customer at the premises. The owner/customer shall then be notified, in writing by certified mail, that the water service to the subject address shall be terminated in fifteen (15) days. Reconnection to the District's system after said termination procedure shall be subject to a reconnect charge equal to the District's actual incurred costs to date, including penalty fees, or to a minimum charge as follows, whichever is greater:

1st reconnect charge	$100.00 per service connection
2nd reconnect charge	$200.00 per service connection
3rd reconnect charge	$300.00 per service connection
4th reconnect charge	$400.00 per service connection

In addition, as a condition of water service, the District shall install a water meter and shall charge the approved metered service and commodity rate for water based on the actual volume of deliveries to the premises.

4. Subsequent violations shall be treated in the same manner as a 4th water waste or 2nd violation (subsequent reconnect charges applied).

5. Prior to the scheduled termination, the customer may choose to pay the District's costs associated with the subject action, and any penalty costs in lieu of terminating service. The customer may, in writing, request a meeting with the District's General Manager to discuss the proposed termination of service. Payment of the penalty charge and fees shall avoid said termination and shall be considered a "waiver of appeal".

6. If the customer requests a meeting with the General Manager, and said meeting does not resolve the proposed termination of service to the customer's satisfaction, the customer may request a hearing before the Board of Directors. Such request shall be made in writing and delivered to the District office within five (5) days from the date of the meeting between the customer and the District's General Manager.

7. If such request is made for a hearing before the Board, the matter shall be scheduled at the earliest possible date. A written notice of such hearing shall be mailed to customer at the premises at least ten (10) days prior to the date of such hearing.

8. Reconnection to the District's system after said termination procedure shall be subject to a reconnect charges equal to the District's actual incurred costs to date, including penalty fees, and other related charges. The District must receive payment for said charges before the water service is restored.

9. The California Department of Health Services shall be notified upon termination and reinstatement of service.

10. If the customer is not issued a warning or violation for a period of one year from the date of the last observed conservation rules violation, enforcement actions shall revert to paragraph (1) of this section.

FAIR OAKS WATER DISTRICT