



Sacramento District 2010 Urban Water Management Plan



Final • October 17, 2011



ACKNOWLEDGEMENTS

California-American Water Company's Northern Division Sacramento District 2010 Urban Water Management Plan was prepared by Water Systems Consulting, Inc. The primary authors are listed below.



Jeffery Szytel, P.E., M.S., M.B.A.

Spencer Waterman

Water Systems Consulting, Inc. would like to acknowledge the significant contributions of California American Water and the following California American Water staff.



CALIFORNIA
AMERICAN WATER

Andrew Soulé, P.E., General Manager, Northern Division

Fred Feizollahi, P.E., Engineering Manager, Planning

James Laicovsky, P.E., Design Engineer

Mark Schubert, P.E., Manager, Capital Assets and Planning

Monica Na, Senior Manager of Rates

Patrick Pilz, Manager of Conservation and Efficiencies

Final

2010 Urban Water Management Plan

for the

Northern Division- Sacramento District

Prepared for:



CALIFORNIA
AMERICAN WATER

Prepared Under the Responsible Charge of:

Jeffery M. Szytel



10/17/2011



TABLE OF CONTENTS

Table of Contents	i
List of Tables	v
List of Figures	vii
List of Acronyms and Abbreviations	viii
1 Plan Preparation	1-1
1.1 Coordination	1-5
1.2 Regional Coordination	1-7
1.2.1 Sacramento Water Forum, Water Forum Agreement and Successor Effort	1-8
1.2.2 American River Basin Cooperating Agencies (ARBCA)	1-8
1.2.3 Sacramento Groundwater Authority (SGA)	1-8
1.2.4 Regional Water Authority (RWA)	1-9
1.2.5 Sacramento Central Groundwater Authority (SCGA)	1-9
1.3 Plan Adoption, Submittal, and Implementation	1-9
1.3.1 Implementation of the 2010 UWMP	1-10
1.3.2 Implementation of the Recycled Water Plan	1-10
1.3.3 Implementation of the DMMs and BMPs	1-10
2 System Description	2-1
2.1 Service Area Description	2-1
2.1.1 Climate	2-13
2.2 Service Area Population	2-14
2.2.1 Other Demographic Factors	2-15
3 System Demands	3-1
3.1 Baseline and Targets	3-1
3.2 Water Demands	3-2
3.2.1 Low-Income Demands	3-9
3.2.2 Sales to Other Water Agencies	3-11
3.2.3 Additional Water Uses and Losses	3-11
3.2.4 Total Water Use	3-11
3.3 Wholesale Water Demand	3-11
3.4 Water Use Reduction Plan	3-12

3.4.1	Meter Retrofit Program	3-12
3.4.2	BMP Implementation	3-13
4	System Supplies	4-1
4.1	Water Sources.....	4-1
4.2	Groundwater.....	4-1
4.2.1	Groundwater Basin, Subbasin, and Management Area Boundaries	4-2
4.2.2	North American Subbasin	4-10
4.2.3	North Area Basin	4-10
4.2.4	Central Basin	4-12
4.2.5	Solano Subbasin	4-14
4.2.6	Groundwater Rights.....	4-14
4.3	Surface Water	4-14
4.3.1	City of Sacramento.....	4-15
4.3.2	Placer County Water Agency	4-17
4.3.3	Sacramento Suburban Water District	4-17
4.3.4	Sacramento County Water Agency (Zone 41).....	4-20
4.3.5	Summary of Wholesale Supplies.....	4-23
4.4	Transfer Opportunities.....	4-24
4.5	Desalinated Water Opportunities.....	4-25
4.6	Recycled Water Opportunities.....	4-25
4.6.1	Wastewater System Description.....	4-25
4.6.2	Recycled Water Supply and Uses.....	4-27
4.6.3	Recycled Water Use Optimization	4-27
4.7	Future Water Projects.....	4-29
4.7.1	Suburban- Rosemont Service Area – Folsom Blvd. Main Extension	4-30
4.7.2	Arden Intertie.....	4-30
4.7.3	Intertie with Sacramento County Water Agency	4-30
5	Water Supply Reliability and Water Shortage Contingency Planning	5-1
5.1	Water Supply Reliability.....	5-1
5.1.1	Wholesale Supply Reliability	5-3
5.1.2	Resource Maximization and Import Minimization	5-7
5.2	Water Shortage Contingency Plan	5-8

5.2.1	Introduction	5-8
5.2.2	Stages of Action, Mandatory Prohibitions and Restrictions, Consumption Reduction Methods, Penalties for Excessive Use.....	5-8
5.2.3	Three-year Minimum Water Supply	5-9
5.2.4	Catastrophic Supply Interruption plan.....	5-11
5.2.5	Revenue and Expenditure Analysis.....	5-12
5.2.6	Mechanisms for Determining Actual Reductions	5-12
5.2.7	Supply and Demand Comparison.....	5-12
5.2.8	Draft Ordinance.....	5-15
5.3	Water Quality.....	5-15
5.3.1	Background	5-15
5.3.2	Antelope.....	5-15
5.3.3	Arden.....	5-15
5.3.4	Isleton.....	5-16
5.3.5	Lincoln Oaks	5-16
5.3.6	Parkway.....	5-17
5.3.7	Security Park	5-17
5.3.8	Suburban Rosemont	5-17
5.3.9	Walnut Grove.....	5-18
5.3.10	West Placer	5-19
6	Demand Management Measures	6-1
6.1	Evaluation of BMP Effectiveness.....	6-3
6.2	BMPs Implemented or Planned to be Implemented	6-3
6.2.1	BMP 1.1.1 CONSERVATION COORDINATOR (DMM L)	6-3
6.2.2	BMP 1.1.2 WATER WASTE PREVENTION (DMM M).....	6-5
6.2.3	BMP 1.1.3 WHOLESALE AGENCY ASSISTANCE PROGRAMS (DMM J)	6-6
6.2.4	BMP 1.2 WATER LOSS CONTROL (DMM C).....	6-6
6.2.5	BMP 1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS (DMM D).....	6-7
6.2.6	BMP 1.4 RETAIL CONSERVATION PRICING (DMM K)	6-9
6.2.7	BMP 2.1 PUBLIC INFORMATION PROGRAMS (DMM G)	6-12
6.2.8	BMP 2.2 SCHOOL EDUCATION PROGRAMS (DMM H)	6-21

6.2.9	BMP 3.1 RESIDENTIAL ASSISTANCE PROGRAM (DMM A/ DMM B)	6-24
6.2.10	BMP 3.2 LANDSCAPE WATER SURVEY (DMM A)	6-27
6.2.11	BMP 3.3 HIGH-EFFICIENCY CLOTHES WASHING MACHINE FINANCIAL INCENTIVES PROGRAMS (DMM F)	6-28
6.2.12	BMP 3.4 WATER SENSE SPECIFICATION (WSS) TOILETS (DMM N)	6-29
6.2.13	BMP 4 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (DMM I)	6-31
6.2.14	BMP 5 LANDSCAPE (DMM E)	6-33
6.3	BMPs Not Implemented or Not Scheduled to be Implemented	6-35
7	Climate change	7-1
7.1	Mitigation	7-1
7.1.1	GHG Estimate	7-2
7.1.2	Looking Forward	7-5
7.2	adaptation	7-5
7.2.1	Adaptive Management	7-6
8	References	8-1
	Appendix A. Antelope Service Area	A
	Appendix B. Arden Service Area	B
	Appendix C. Isleton Service Area	C
	Appendix D. Lincoln Oaks Service Area	D
	Appendix E. Parkway Service Area	E
	Appendix F. Security Park Service Area	F
	Appendix G. Suburban Rosemont Service Area	G
	Appendix H. Walnut Grove Service Area	H
	Appendix I. West Placer Service Area	I
	Appendix J. Baseline Daily Per Capita Water Use Memorandum	J
	Appendix K. CPUC Rule 14.1	K
	Appendix L. SGA Water Accounting Framework	L
	Appendix M. Public Hearing Notice	M
	Appendix N. CUWCC Best Management Practice Report	N
	Appendix O. DWR Review Checklist	O
	Appendix P. SGAGMP	P
	Appendix Q. CSCGMP	Q

Appendix R. Demand Projection Methodology R
 Appendix S. Adoption Resolution S
 Appendix T. 60 Day Notification Letters T

LIST OF TABLES

Table 1. DWR’s Published Schedule for 2010 UWMPs 1-2
 Table 2. Summary of Changes in the UWMP Act Since 2005 1-2
 Table 3. Agency Coordination (DWR Table 1)..... 1-6
 Table 4. Precipitation and Evapotranspiration in Sacramento 2-13
 Table 5. Precipitation and Evapotranspiration 2-13
 Table 6. Population Projections (DWR Table 2) 2-14
 Table 7. Baseline, Compliance, Interim Target, and Target Per Capita Water Use 3-1
 Table 8. Past, Current, and Projected Deliveries by Service Area, afy 3-3
 Table 9. Sacramento District Deliveries 2005, afy (DWR Table 3) 3-4
 Table 10. Sacramento District Deliveries 2010, afy (DWR Table 4) 3-5
 Table 11. Sacramento District Deliveries 2015, afy (DWR Table 5) 3-6
 Table 12. Sacramento District Deliveries 2020, afy (DWR Table 6) 3-7
 Table 13. Sacramento District Deliveries 2025 & 2030, afy (DWR Table 7) 3-8
 Table 14. Sacramento District Low-Income Water Demands, afy (DWR Table 8) 3-10
 Table 15. Sacramento District Sales to Other Water Agencies, afy (DWR Table 9) 3-11
 Table 16. Sacramento District Additional Water Uses and Losses, afy (DWR Table 10) 3-11
 Table 17. Sacramento District Total Water Use, afy (DWR Table 11) 3-11
 Table 18. Demand Projections Provided to Wholesale Suppliers, afy (DWR Table 12) 3-12
 Table 19. Water Supplies- Current and Projected, afy (DWR Table 16) 4-1
 Table 20. Sacramento District Groundwater – Historic Volume Pumped, afy (DWR Table 18) 4-2
 Table 21. Sacramento District Groundwater- Volume Projected to be Pumped, afy (DWR Table 19) 4-2
 Table 22. City of Sacramento Average Year Supply, afy¹ 4-15
 Table 23. Placer County Water Agency Average Year Supply, afy¹ 4-17
 Table 24. SSWD Water Supply, California American Water Minimum Purchases, afy 4-18
 Table 25. Sacramento Suburban Water District Average Year Supply, afy¹ 4-18
 Table 26. SCWA Average Year Supply, afy¹ 4-21
 Table 27. Sacramento District Wholesale Supplies- Existing and Planned, afy (DWR Table 17) 4-23
 Table 28. Wholesale Supplies by California American Water Service Area, afy 4-24
 Table 29. Sacramento District Recycled Water- Wastewater Collection and Treatment, afy (DWR Table 21) 4-26
 Table 30. Disposal of Wastewater, afy (non-recycled) 4-27
 Table 31. 2005 UWMP Recycled Water Use Projected for 2010 and Actual 2010 Recycled Water Use, afy 4-28
 Table 32. Projected Future Recycled Water Use in Service Area, afy 4-29
 Table 33. Sacramento District Future Water Supply Projects (DWR Table 26) 4-31

Table 34. Sacramento District Factors Resulting in Inconsistency of Supply (DWR Table 29)5-1

Table 35. Sacramento District Supply Reliability Base Years 5-2

Table 36. Sacramento District Supply Reliability- Current Water Uses (DWR Table 31)5-3

Table 37. Sacramento Suburban Water District Water Supply , afy¹ 5-4

Table 38. PCWA Water Supply, afy¹.....5-5

Table 39. SCWA Water Supply, afy¹ 5-6

Table 40. City of Sacramento Water Supply, afy 5-7

Table 41. Sacramento District Three-year Minimum Water Supplies, afy 5-10

Table 42. Supply and Demand Comparison- Normal Year, afy (DWR Table 32)..... 5-12

Table 43. Supply and Demand Comparison- Single Dry Year, afy (DWR Table 33)..... 5-13

Table 44. Supply and Demand Comparison- Multiple Dry-Year Events, afy (DWR Table 34)..... 5-14

Table 45. DMMs and BMPs.....6-2

Table 46. California American Water Conservation Team6-4

Table 47. Actual Conservation Staff6-5

Table 48. Planned Conservation Staff6-5

Table 49. Number of Connections Retrofitted with Meters 6-8

Table 50. Number of Connections Planned to be Retrofitted with Meters..... 6-8

Table 51. Water Rate Structures6-11

Table 52. Number of Actual Public Outreach Events6-20

Table 53. Number of Planned Public Outreach Events6-20

Table 54. Number of Students Reached 6-24

Table 55. Number of Students Expected to be Reached 6-24

Table 56. Actual Residential Water Audits..... 6-25

Table 57. Planned Residential Water Audits.....6-25

Table 58. Actual Number of Plumbing Retrofit Devices 6-26

Table 59. Planned Number of Plumbing Retrofit Devices.....6-27

Table 60. Actual Residential HECW Rebates6-29

Table 61. Planned Residential HECW Rebates- Smart Rebate Program 6-29

Table 62. Actual Residential HET Rebates.....6-30

Table 63. Planned Residential HET Rebates 6-30

Table 64. Planned Low-Income HET Rebates.....6-31

Table 65. Actual CII Audits 6-32

Table 66. Planned CII Audits6-32

Table 67. Actual Commercial HET Rebates 6-32

Table 68. Planned Commercial HET Rebates 6-33

Table 69. Actual LL Audits 6-34

Table 70. Planned LL Audits 6-35

Table 71. Energy uses in the Sacramento District..... 7-3

Table 72. Potential Effects of Climate Change on Water Systems Statewide (48) 7-6

Table 73. Example Adaptive Management Scenarios for the Sacramento District 7-7

LIST OF FIGURES

Figure 1. Sacramento District Service Areas	2-3
Figure 2. Antelope Service Area	2-4
Figure 3. Arden Service Area.....	2-5
Figure 4. Isleton Service Area.....	2-6
Figure 5. Lincoln Oaks Service Area	2-7
Figure 6. Parkway Service Area	2-8
Figure 7. Security Park Service Area	2-9
Figure 8. Suburban Rosemont Service Area.....	2-10
Figure 9. Walnut Grover Service Area.....	2-11
Figure 10. West Placer Service Area	2-12
Figure 11. Historical, Current, and Projected Population for the Sacramento District	2-15
Figure 12. Baseline and Targets	3-2
Figure 13. Water Use by Service Area.....	3-4
Figure 14. Antelope Gross Water Use and GPCD.....	3-13
Figure 15. DWR Hydrologic Region and Groundwater Basins	4-4
Figure 16. North Area Basin and North American Basin.....	4-5
Figure 17. Central Basin Overlying South American Subbasin (4)	4-6
Figure 18. CSCGMP Sacramento Country Groundwater Basins (4)	4-7
Figure 19. American River Basin and IRWMP Areas (10)	4-8
Figure 20. Solano Subbasin	4-9
Figure 21. Spring 2008 Groundwater Elevation Contours for the North Area Basin (12)	4-11
Figure 22. Long-Term Hydrograph in the North Area Basin (12).....	4-12
Figure 23. Central Basin Spring 2004 Groundwater Elevation Contour Map (4).....	4-13
Figure 24. City of Sacramento Places of Use (14)	4-16
Figure 25. SSWD PCWA Place of Use (19)	4-19
Figure 26. SCWA Zone 40 (21)	4-22
Figure 27. Be Water Smart Logo (provided by RWA).....	6-13
Figure 28. RWA’s Blue Thumb Webpage	6-14
Figure 29. MIE Program Logo.....	6-22
Figure 30. Project WET Logo	6-22
Figure 31. 2010 District GHGs Associated with Physical Energy Use.....	7-3
Figure 32. Adaptive Management Process	7-7

LIST OF ACRONYMS AND ABBREVIATIONS

afy- acre feet per year

American Water- American Water Company

ARB- American River Basin

ARB IRWMP- American River Basin Integrated Regional Water Management Plan

ARBCUP- American River Basin Conjunctive Use Program

California American Water- California American Water

CCl₄- Carbon Tetrachloride

CDPH- California Department of Public Health

City – City of Sacramento

ClO₄- Perchlorate

County- County of Sacramento

CPS- Comprehensive Planning Study

CSCGMP- Central Sacramento County Groundwater Management Plan

DBCP- Dibromochloropropane

DWR- California Department of Water Resources

EDB- Ethylene Dibromide

ET_o- Evapotranspiration

GAC- Granular Activated Carbon

GRC- General Rate Case

IOU- Investor Owned Utility

IRCTS- Inactive Rancho Cordova Test Site

IRWMP- Integrated Regional Water Management Plan

MCL- Maximum Contaminant Level

MSL-mean sea level

NWTP- Natomas Water Treatment Plant

PCE- Tetrachloroethylene

PCWA- Placer County Water Agency

PSA- Purveyor Specific Agreement

RWA- Sacramento Regional Water Authority

RWMP- Regional Water Master Plan

SACOG- Sacramento Area Council of Governments SB7- Senate Bill x 7-7

SB7- Senate Bill x7-7

SB7 Guidebook- the California Department of Water Resources' *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*

SGA- Sacramento Groundwater Authority

SOC- Synthetic Organic Compound

SRCSA- Sacramento Region County Sanitation District

SRWTP- Sacramento Regional Wastewater Treatment Plant

SSWD- Sacramento Suburban Water District

TCE- Trichloroethylene

UWMP Act- Urban Water Management Planning Act

UWMP- Urban Water Management Plan

UWMP Guidebook- the California Department of Water Resources' *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan*

VOC- Volatile Organic Compound

WAF- Water Accounting Framework

WFA- Water Forum Agreement

WFSE- Water Forum Successor Effort

WROS - Water Recycling Opportunity Study

1 PLAN PREPARATION

This plan comprises the 2010 Urban Water Management Plan (UWMP) for California-American Water Company's (California American Water's) Northern Division Sacramento District, as required by the California Urban Water Management Planning Act (UWMP Act). The UWMP Act requires all urban water suppliers with more than 3,000 connections or distributing more than 3,000 acre feet per year (afy) to complete an UWMP every five years ending in '5' and '0'. The UWMP Act is administered by the California Department of Water Resources (DWR), who is responsible for compiling data for statewide and regional analysis, and publishing the accepted documents online for public access.

The UWMP is a valuable planning document used for multiple purposes:

- Meets a statutory requirement of the California Water Code
- Provides a key source of information for Water Supply Assessments (WSAs) and Written Verifications of Water Supply
- Supports regional long-range planning documents including City and County General Plans
- Provides a standardized methodology for water utilities to assess their water resource needs and availability
- Serves as a critical component of developing Integrated Regional Water Management Plans (IRWMPs)
- Provides a resource for regional involvement in the California Water Plan

California American Water is a privately owned public utility providing water services to over 630,000 people in 50 communities throughout California. California American Water is organized into three divisions: Northern, Central and Southern. The Northern Division includes the Sacramento and Larkfield Districts, the Central Division includes the Monterey District, and the Southern Division includes the Ventura County, Los Angeles County and San Diego County Districts.

The Sacramento District in California American Water's Northern Division contains nine service areas, with the sum of the service areas exceeding the 3,000 afy/ 3,000 connections threshold. California American Water has prepared and submitted to DWR three previous UWMPs for the Sacramento District: February 1996; December 2000; and April 2006 (revised in June 2009). The first two UWMPs were completed by the Citizens Utilities Company of California. California American Water purchased the Citizens Utilities Company in 2002.

This plan was prepared based on guidance from DWR's *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* (UWMP Guidebook) (1), DWR Urban Water Management Plans Public Workshops and Webinars, DWR Senate Bill x 7-7 (SB7) public listening sessions, *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (SB7 Guidebook) (2), and the 2010 DWR Review Sheets (Appendix O).

The 2010 UWMPs must be adopted by the water purveyors by July 1, 2011 and submitted to DWR by July 31, 2011. Usually, UWMPs are due on December 31 of years ending in '0' and '5', but a six month extension has been granted for submittal of the 2010 UWMPs to provide additional time for water suppliers to address SB7 requirements (20% reduction by 2020). The final 2010 UWMP Guidebook became available on March 2, 2011. DWR's published 2010 UWMP schedule is summarized in Table 1.

Table 1. DWR's Published Schedule for 2010 UWMPs

Date	Event/Task
November 2010	Initial workshops
December 21, 2010	Draft Guidebook released
March 2011	Amended Final Guidebook released
January/February 2011	Additional workshops
July 1, 2011	Adoption of UWMPs by water purveyors
July 31, 2011	UWMPs due to DWR

According to the 2010 Guidebook, "As a general rule, DWR reviewers will consider a plan complete if it meets the criteria listed in the Review Sheets" (1). A DWR Review Sheet checklist is provided in Appendix O. Table 2 summarizes changes to the UWMP Act since 2005 that have been addressed in this UWMP.

Table 2. Summary of Changes in the UWMP Act Since 2005

Change	New/ Revised Water Code Section Number	Summary of Changes	UWMP Approach
Notification	10621(b)	<i>Added:</i> Provide at least 60 days notification to any city or county within which the supplier provides water for the public hearing required by Section 10642.	The Cities and Counties within California American Water's Sacramento District service areas will be notified in a timely manner to meet the requirement.
DMM Compliance	10631(j)	<i>Changed:</i> Members of the CUWCC will be considered in compliance with the DMM evaluation (10631 (f) and (g)) if they comply with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008 and by submitting their CUWCC annual reports.	California American Water is a member of the CUWCC and is in full compliance with the CUWCC MOU. The 2009-2010 CUWCC BMP Annual Report is attached in Appendix N.

Change	New/ Revised Water Code Section Number	Summary of Changes	UWMP Approach
Wholesale Suppliers Source Water	10631(j)	<i>Deleted:</i> Text identifying the specific types of water an urban water supplier may seek information from a wholesaler supplier. The option to seek information from a wholesale supplier is not deleted, just the identification of source water types.	No impact to this UWMP.
Lower Income housing water use projections	10631.1	<i>Added:</i> Water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households (Health and Safety Code Section 50079.5) will be provided. These water use projections are to assist a supplier in complying with Government Code Section 65589.7 to grant priority of the provision of service to housing units affordable to lower income households.	Values are estimated based on California American Water customer data and the SACOG Regional Housing Allocation Plan (See Section 3.2.1)
Linkage of DMM to State grant or loan program	10631.5(a)	<i>Changed:</i> After January 1, 2009, eligibility for state-funded grants or loans will be conditioned on the implementation of Section 10631 DMMs. If a DMM is not currently being implemented, then the urban water supplier submits to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement. If a DMM is not locally cost-effective (the present value of the local benefits is less than the present value of local costs to implement the DMM), then the water supplier will submit supporting documentation and the DWR will provide a determination within 120 days of UWMP submittal.	No impact to this UWMP.
DMM Compliance	10631.5(b)	<i>Added:</i> DWR will consult with other agencies and public input and develop eligibility requirements for meeting compliance with DMM implementation. Determination of DMM compliance will be based on an individual water agencies implementation or participation with a regional group. An individual water agency will not be denied eligibility if another participating regional agency does not comply with each of the DMMs	No impact to this UWMP.
Determination of Grant and Loan Eligibility	10631.5(c)	<i>Added:</i> Grant and loan eligibility, based on DMM compliance, will be included in the funding guidelines.	No impact to this UWMP.

Change	New/ Revised Water Code Section Number	Summary of Changes	UWMP Approach
	10631.5(d)	<i>Added:</i> The administering agency will request and eligibility determination from DWR regarding “the requirements of this section”. DWR will respond within 60 days.	No impact to this UWMP.
	10631.5(e)	<i>Added:</i> The water supplier may submit copies of its annual reports and other relevant documents to assist DWR in determining implementation or scheduling of the water suppliers DMMs. Water suppliers that are signatories of the CUWCC MOU may submit its annual reports to support its DMM activities.	California American Water is a member of the CUWCC and is in full compliance with the CUWCC MOU. The 2009-2010 CUWCC BMP Annual Report is attached in Appendix N.
	10631.5(f)	<i>Added:</i> “This section” is in effect only until July 1, 2016, after which it is repealed, unless another statute is enacted.	No impact to this UWMP.
New DMM Independent Technical Panel	10631.7	<i>Added:</i> DWR, with the CUWCC, will convene a technical panel to provide information and recommendations to DWR and the Legislature on new DMMs, technologies, and approaches. There is further language on the panel members and timing.	No impact to this UWMP.
Potential Recycled Water Uses	10633(d)	<i>Added:</i> Indirect potable reuse is to be considered as an option for a potential use of recycled water.	No impact to this UWMP.
UWMP Distribution	10644(a)	<i>Added:</i> A copy of the UWMP will also be submitted to the California State Library no later than 30 days after its adoption	California American Water will submit a copy of its adopted UWMP to the California State Library to meet this requirement.
Exemplary UWMP Elements	10644(b)	<i>Added:</i> ‘Exemplary’ elements of individual plans are to be identified in the 2011 Legislative Report	No impact to this UWMP.
Exemplary UWMP	10644(c)	<i>Added:</i> (1), (2), and (3). Clarifying that “exemplary” DMMs are those that achieve water saving significantly above the levels established by DWR to meet the requirements of 10631.7. The results are to be distributed to the panel convened pursuant to Section 10631.7 and the public.	No impact to this UWMP.
Retail Deadline	144644(j)(1)	<i>Added:</i> An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan.	California American Water will make its best effort to adopt the plan in a timely manner.

Change	New/ Revised Water Code Section Number	Summary of Changes	UWMP Approach
Wholesaler Deadline	144644(j)(2)	<i>Added:</i> An urban wholesale water supplier whose urban water management plan . . . is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.	No impact to this UWMP.
	10657	<i>Deleted.</i>	No impact to this UWMP.

1.1 COORDINATION

California American Water coordinated with multiple neighboring and stakeholder agencies in the preparation of this UWMP. The coordination efforts were conducted to: 1) inform the agencies of California American Water activities; 2) gather high quality data for use in developing this UWMP; and 3) coordinate planning activities with other related regional plans and initiatives. The coordination activities conducted by California American Water are shown in Table 3.

California American Water is an investor owned utility (IOU) regulated by the California Public Utility Commission (CPUC). Therefore, its facilities, operations and financial structure (including customer rates) are subject to extensive regulation by the CPUC, as well as environmental, health, safety and water quality regulations by federal, state and local governments. The CPUC sets rules and regulates public utility companies in California. The intent of the regulations set by the CPUC is to ensure provision of high quality water service at a fair price. All increases in service rates are directly related to the cost of providing quality service and are subjected to a public review process and approval by the CPUC. Each of California American Water's individual systems is registered with separate operating permits with the California Department of Public Health (CDPH).

Table 3. Agency Coordination (DWR Table 1)

	Participated in developing the plan	Commented on the draft	Attended public meeting	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Was sent a URL link to access the Final UWMP
State Agencies							
California Department of Water Resources (DWR)				X			
California Public Utilities Commission (CPUC)							X
Regional Agencies							
Placer County Fire Marshall							X
Regional Water Authority (RWA)							X
Sacramento Area Council of Governments (SACOG)				X			
Sacramento Central Groundwater Authority (SCGA)				X			
Sacramento Groundwater Authority (SGA)				X			
Sacramento Metro Fire Marshall							X
Sacramento Regional County Sanitation District (SRCS D)							X
Counties							
County of Sacramento				X	X	X	X
Placer County				X	X	X	X
Cities							
City of Citrus Heights					X	X	X
City of Isleton					X	X	X
City of Rancho Cordova					X	X	X
City of Roseville				X	X	X	X
City of Sacramento					X	X	X
City of Sacramento Fire Marshall							X

	Participated in developing the plan	Commented on the draft	Attended public meeting	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Was sent a URL link to access the Final UWMP
Water Suppliers							
Citrus Heights Water District							X
Florin County Water District							X
Fruitridge Vista Water Company							X
Golden State Water Company							X
Natomas Central Mutual Water Company							X
Placer County Water Agency (PCWA)					X	X	
Rio Linda/ Elverta Community Water District							X
Sacramento County Water Agency (SCWA)				X	X	X	
Sacramento Suburban Water District (SSWD)					X	X	
Tokay Park Water District							X

1.2 REGIONAL COORDINATION

Water resources within the Sacramento area are plentiful and varied, including three major rivers and vast groundwater basins. Additionally, there are multiple water purveyors that rely upon these resources to meet urban, rural, agricultural and environmental demands. Considering the diverse interests and economic importance of these resources, many regional cooperative efforts have come about to coordinate their sustainable management. Multiple regional groups and agencies have formed with the express goal of sustainable management of the regional water resources. Several of these regional groups and agencies that are relevant to California American Water are discussed in greater detail below and referenced throughout this plan.

1.2.1 Sacramento Water Forum, Water Forum Agreement and Successor Effort

The Sacramento Water Forum (Water Forum) was established in 1993 as a collaborative effort to manage long-term water supply within the Sacramento region to meet environmental, potable, and agricultural water needs. The collaboration started between the City and County of Sacramento and grew to include a stakeholder group of forty (40) representatives including water purveyors, city and county governments, environmental groups, agricultural interests, and business leaders. California American Water is one of the forty representatives and is actively involved in the Water Forum.

The Water Forum Agreement (WFA) was signed by forty (40) stakeholder organizations in April 2000 in an effort to implement programs to “maintain the long-term sustainable yield of the North Area Groundwater Basin, conserve municipal and industrial water use, and protect fish and other public trust assets in the lower American River” (3). The WFA recommends a “long-term average annual pumping limit (sustainable yield) for each of the three geographic subareas of the groundwater basin within Sacramento County: 131,000 acre-feet (AF) for the North Basin (north of the American River); 273,000 AF for the Central Basin (between the American and Cosumnes rivers); and 115,000 AF for the Galt or South Basin (south of the Cosumnes River)” (4).

The WFA was followed by the Water Forum Successor Effort (WFSE), to implement the policies and programs agreed upon by the WFA stakeholders. This included the creation of the Central Sacramento County Groundwater Forum (CSCGF), which developed the Advisory Committee of CSCGF stakeholders responsible for the creation of the Central Sacramento County Groundwater Management Plan (CSCGMP). The WFA representatives meet periodically throughout the year to discuss regional water issues related to the implementation of the WFA. Subsequently, the Sacramento Central Groundwater Authority (SCGA) was also formed.

1.2.2 American River Basin Cooperating Agencies (ARBCA)

ARBCA was established to create a Regional Water Master Plan (RWMP) to implement the WFA. The RWMP was sponsored by the California Department of Water Resources (DWR) and the United States Bureau of Reclamation. The American River Basin Conjunctive Use Program (ARBCUP) was developed as a result of this process. The implementation of the RWMP and ARBCUP transitioned to become activities of the Sacramento Groundwater Authority (SGA) and the Regional Water Authority (RWA). Upon completion of the RWMP, ARBCA dissolved. California American Water is a purveyor located within the scope of the RWMP.

1.2.3 Sacramento Groundwater Authority (SGA)

SGA is a joint powers authority that was formed in 1998 and is comprised of representatives from the cities of Citrus Heights, Folsom and Sacramento, fourteen water purveyors, agricultural interests, and self-supplied pumpers. SGA was created to manage the North Area Groundwater Basin. SGA adopted a revised groundwater management plan in 2008 (Appendix P), and has developed a Water Accounting Framework (WAF) to establish policies and procedures to encourage conjunctive use operations and to facilitate long-term sustainability of the North Area Groundwater Basin as a source of public water supply (Appendix L). California American Water is a member of the SGA.

1.2.4 Regional Water Authority (RWA)

RWA is a joint powers authority that was formed in 2001 to promote collaboration on water management and water supply reliability programs in the greater Sacramento, Placer, and El Dorado County region. It is comprised of twenty (20) members and two (2) associate members. In 2006, RWA adopted its Integrated Regional Water Management Plan (IRWMP), which it developed in partnership with the United States Army Corps of Engineers and the Sacramento County Water Agency. The RWA develops regional projects and programs including a water efficiency program designed to help local purveyors implement best management practices on a regional basis, and implementation of the ARBCUP. California American Water is a member of the RWA. California American Water receives subsidized funding for toilet and washing machine rebates through the RWA's proposition 50 water use efficiency grant.

1.2.5 Sacramento Central Groundwater Authority (SCGA)

SCGA is a joint powers authority comprised of nine (9) public agencies, two (2) private water purveyors, agricultural interests, and other groundwater users. It manages the groundwater resources within the basin that extends between the American and Cosumnes Rivers, for the benefit of its members and consistent with the WFA. SCGA also coordinates with other water management entities and activities throughout the region. SCGA adopted its Groundwater Management Plan in 2006(Appendix Q). California American Water is a member of the SCGA.

1.3 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

To fulfill the requirements of Water Code Section 10621(c), California American Water sent letters of notification of preparation of the 2010 UWMP to all cities and counties within its Sacramento District service areas 60 days prior to the public hearing. Copies of the 60 day notification letters are attached as Appendix T.

To fulfill the requirements of Water Code Section 10642 of the UWMP Act, California American Water made the draft 2010 UWMP available for public review and held a public hearing on July 27, 2011. The public review hearing was noticed on July 13, 2011 and the hearing notice is attached as Appendix M. In addition, California American Water maintained a copy of the draft UWMP in its office for review prior to the public hearing.

The Final 2010 Northern Division Sacramento District UWMP was formally adopted by California American Water on October 14, 2011. A copy of the Adoption Resolution is included in Appendix S. A copy of the Final 2010 Northern Division Sacramento District UWMP was sent to the California State Library, DWR, and all cities and counties within California American Water's Sacramento District service area within 30 days of adoption. California American Water made the final adopted 2010 UWMP available for public review in its offices during normal hours within 30 days of adoption.

1.3.1 Implementation of the 2010 UWMP

The implementation of this plan shall be carried out as described unless significant changes occur between the adoption of this plan and the 2015 plan. If such significant changes do occur, California American Water will amend and readopt the plan as required by the California Water Code. For more information on implementation of specific sections of this plan, see sections 1.3.2 and 1.3.3.

1.3.2 Implementation of the Recycled Water Plan

California American Water does not own or operate wastewater collection or treatment facilities or recycled water distribution facilities. The City of Roseville delivers some recycled water to customers within California American Water's West Placer service area and discharges the rest into Dry Creek, which also goes through the West Placer service area. However, California American Water does not distribute the recycled water to its customers. California American Water does not have any plans to collect wastewater, treat wastewater, or deliver recycled water in its service areas within the timeline of this plan.

1.3.3 Implementation of the DMMs and BMPs

California American Water is a member of the California Urban Water Conservation Council (CUWCC) and is a signatory to the CUWCC Memorandum of Understanding (CUWCC MOU). The CUWCC MOU outlines 14 Best Management Practices (BMPs) that correspond with the 14 Demand Management Measures (DMM) outlined in the UWMP Act. The UWMP Act allows CUWCC members to submit their CUWCC BMP reports in lieu of completing a DMM section if the member is in full compliance with the BMPs. Since California American Water is in full compliance with the CUWCC BMPs, the 2009-2010 CUWCC BMP Annual Report is attached in Appendix N. In the previous UWMP both a DMM section and BMP report were included. This plan contains a DMM section (see Section 6) and BMP report (see Appendix N) as well.

The evaluation of BMPs provides guidance for internal development of California American Water's conservation programs and is used as testimony and support documentation for rate cases required by the CPUC. Therefore, the BMP report is attached in Appendix N. The BMPs listed in the previous UWMP are being implemented as planned or exceed the planned implementation. The implementation of any of the described programs and costs are contingent on the CPUC approval of programs and their budget funding, as well as incorporation in the American Water Business Plan.

2 SYSTEM DESCRIPTION

California American Water is a wholly-owned subsidiary of the American Water Works Company (American Water), one of the largest investor-owned water and wastewater utility companies in the United States. American Water is headquartered in Voorhees, New Jersey, and California American Water is headquartered in Coronado, CA. California American Water was incorporated into American Water under California law in 1966 when American Water acquired California Water and Telephone.

California American Water is organized into three Divisions: the Northern Division; Central Division; and Southern Division. The Northern Division includes the Sacramento and Larkfield districts, containing ten separate water service areas: Antelope, Arden, Isleton, Larkfield, Lincoln Oaks, Parkway, Security Park, Suburban Rosemont, West Placer, and Walnut Grove. This UWMP will only cover the Sacramento District's nine service areas, which together exceed 3,000 customers and deliver 3,000 afy or more. Figure 1 shows the service areas covered in this UWMP.

2.1 SERVICE AREA DESCRIPTION

Eight of the service areas of the Sacramento District are located in Sacramento County, California and one is located in Placer County, California (see inset map in Figure 1). Sacramento and Placer Counties are located in the California Central Valley. The California Central Valley encompasses 994 square miles, extending from the low delta lands between the Sacramento River and the San Joaquin River on its western border to the foothills of the Sierra Nevada Mountains on its eastern border.

The Antelope service area encompasses 3,671 acres, lying mostly within Sacramento County, with a very small portion located in Placer County. Antelope is located north of Antelope Road up to the Sacramento-Placer county border, extending roughly two miles to the east and west of Watt Avenue. California American Water serves a population of approximately 34,074 people in Antelope. Figure 2 shows the Antelope service area.

The Arden service area encompasses 683 acres, and is located to the north and south of Arden Way, west of Fulton Avenue and east of the California State Exposition grounds along Ethan Way. California American Water serves a population of approximately 7,735 people in Arden. Figure 3 shows the Arden service area.

The Isleton service area encompasses 350 acres, and is located along the Sacramento River Delta in southern Sacramento County. California American Water serves a population of approximately 799 people in Isleton. Figure 4 shows the Isleton service area.

The Lincoln Oaks service area encompasses 4,569 acres, and is located along the I-80 Freeway corridor approximately 12 miles northeast of downtown Sacramento. Lincoln Oaks is approximately two miles east of the Antelope service area. California American Water serves a population of approximately 42,854 people in Lincoln Oaks. Figure 5 shows the Lincoln Oaks service area.

The Parkway service area encompasses 5,297 acres, and is located along Highway 99 south of Sacramento and north of Elk Grove extending west to Franklin Boulevard and east to Elk Grove/Florin Road. California American Water serves a population of approximately 54,417 people in Parkway. Figure 6 shows the Parkway service area.

The Security Park service area covers 1,813 acres, and is located within the City of Rancho Cordova to the northeast of Sunrise Boulevard and Douglas Avenue. Security Park is largely vacant, with existing development focused on industrial and commercial uses. There are very few full-time residents currently, but significant development is expected in the area in the future. Figure 7 shows the Security Park service area.

The Suburban Rosemont service area encompasses 8,491 acres, and is located south of the American River along Highway 50 extending south to Fruitridge Road, east partially into Rancho Cordova, and west to S. Watt Avenue. California American Water serves a population of approximately 56,367 people in Suburban Rosemont. The Suburban Rosemont service area actually includes two contiguous and individually permitted water systems: Suburban; and Rosemont. California American Water has petitioned CDPH to operate these two systems as a single water system, and final approval is pending. For the purposes of this plan, Suburban Rosemont is presented as a single service area. Figure 8 shows the Suburban Rosemont service area.

The Walnut Grove service area encompasses 117 acres, and is located along the Sacramento River Delta in southern Sacramento County. California American Water serves approximately 256 people in Walnut Grove. Figure 9 shows the Walnut Grove service area.

The West Placer service area encompasses 11,154 acres, and is located in western Placer County immediately north of the Antelope service area. It spans from Roseville City in the east to Sutter County on the west. California American Water serves approximately 4,914 people in the West Placer service area.

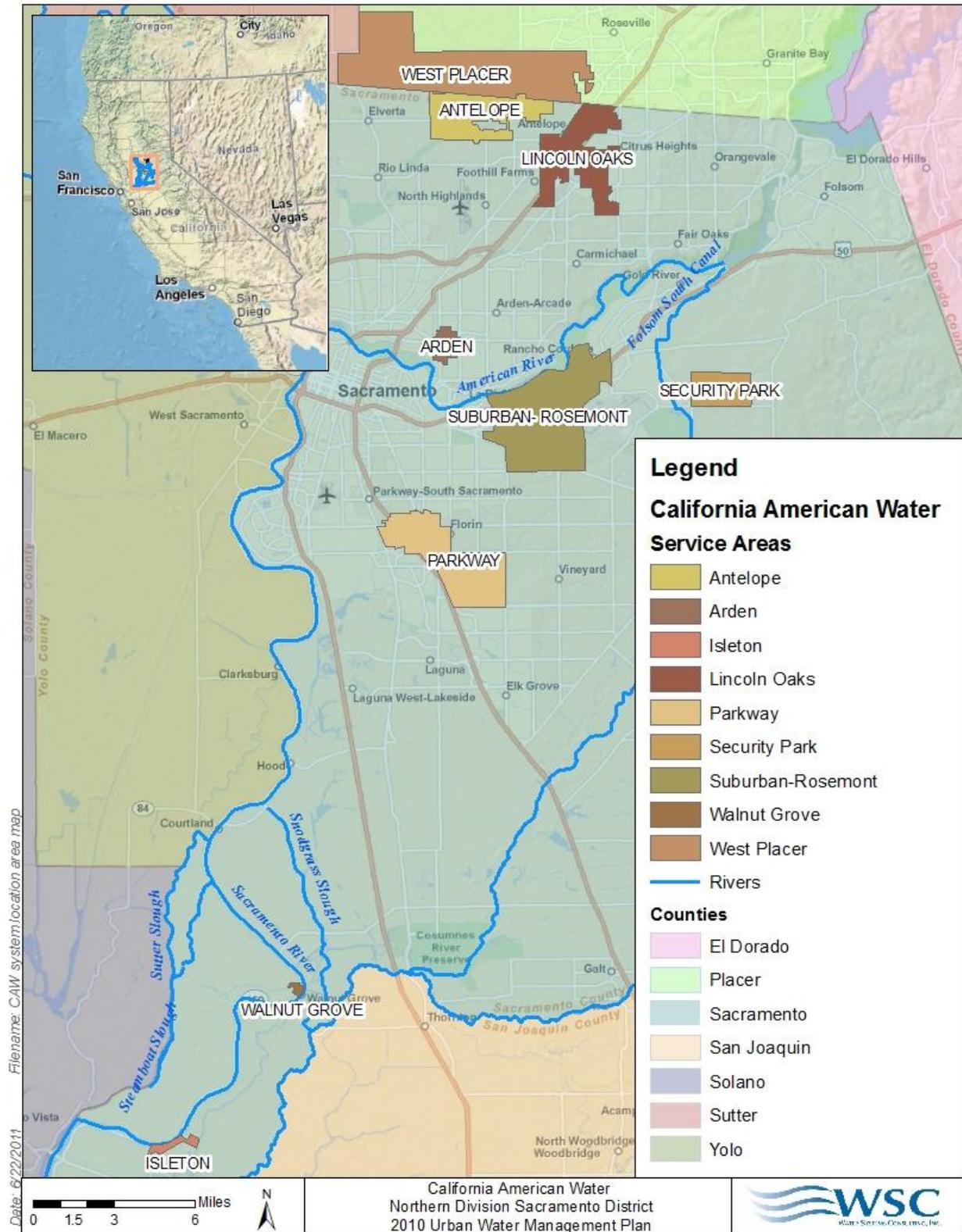


Figure 1. Sacramento District Service Areas

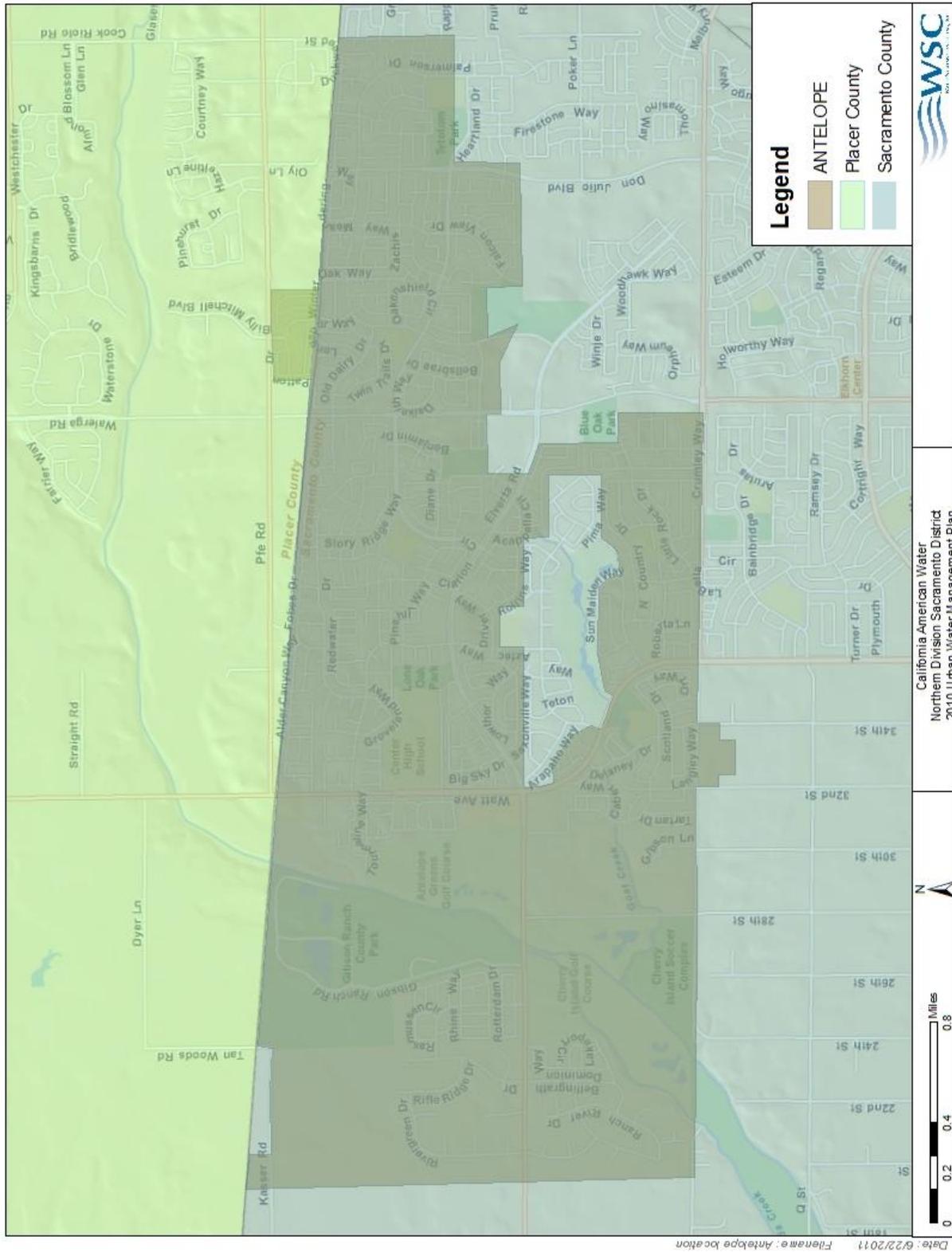


Figure 2. Antelope Service Area

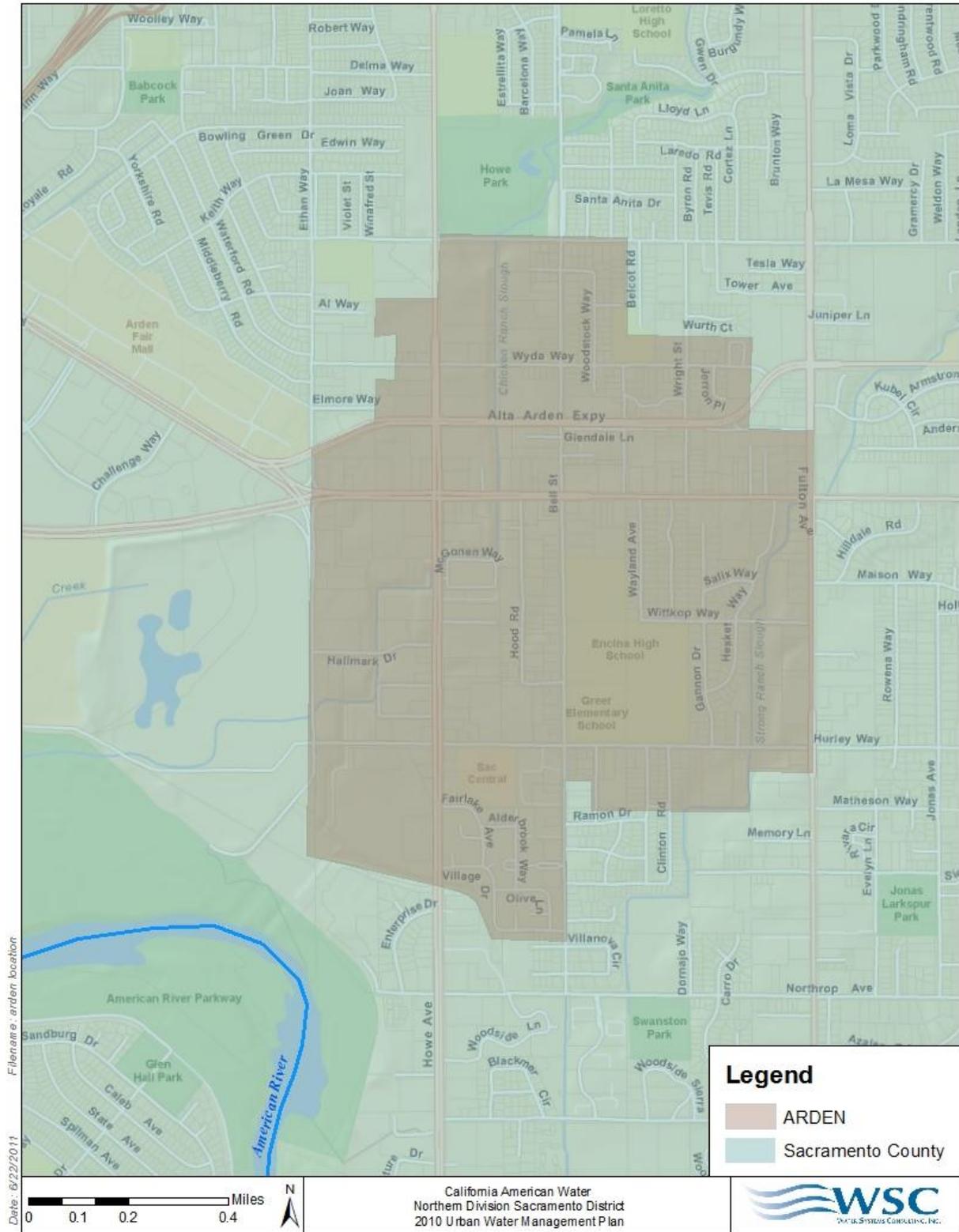


Figure 3. Arden Service Area

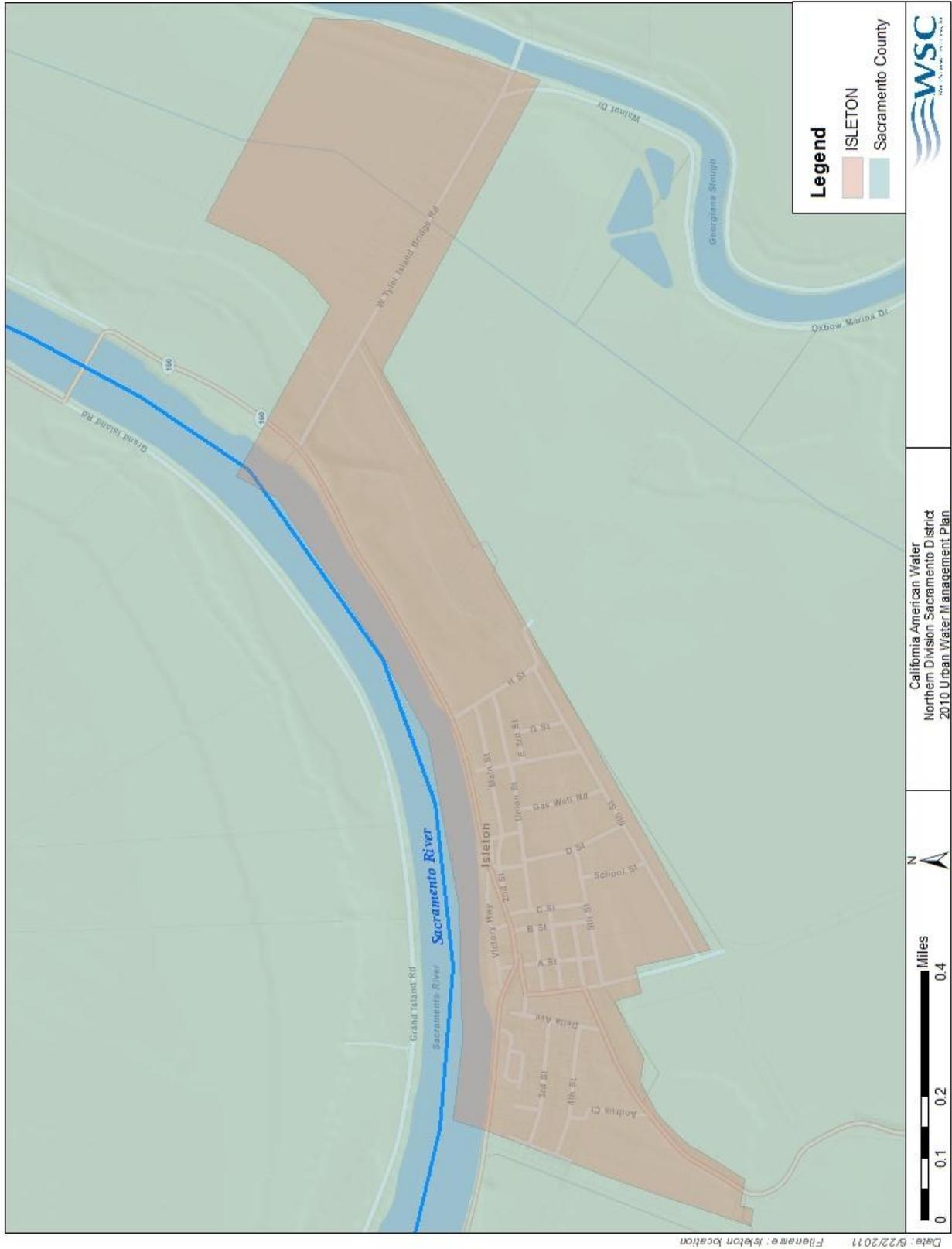


Figure 4. Isleton Service Area

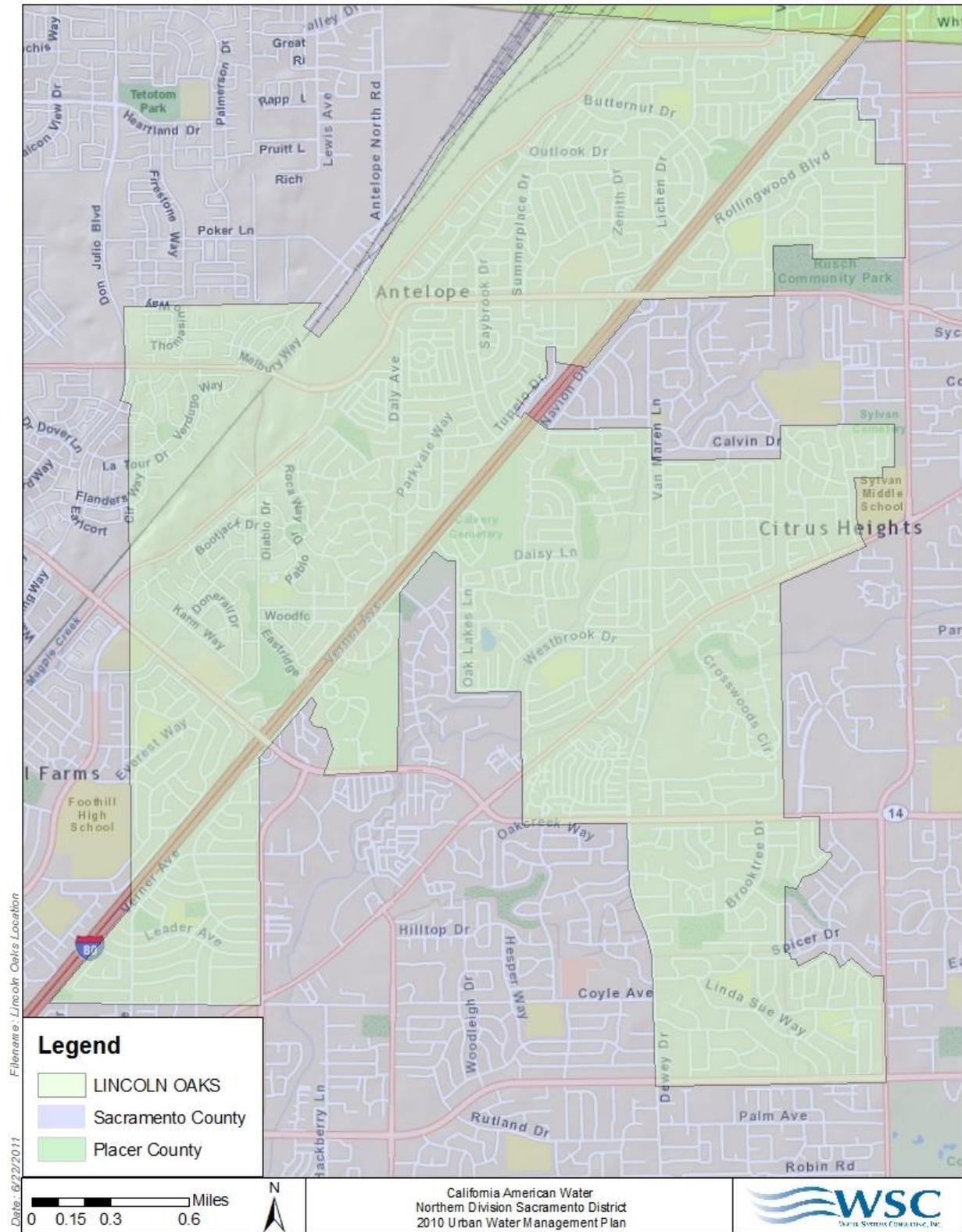


Figure 5. Lincoln Oaks Service Area

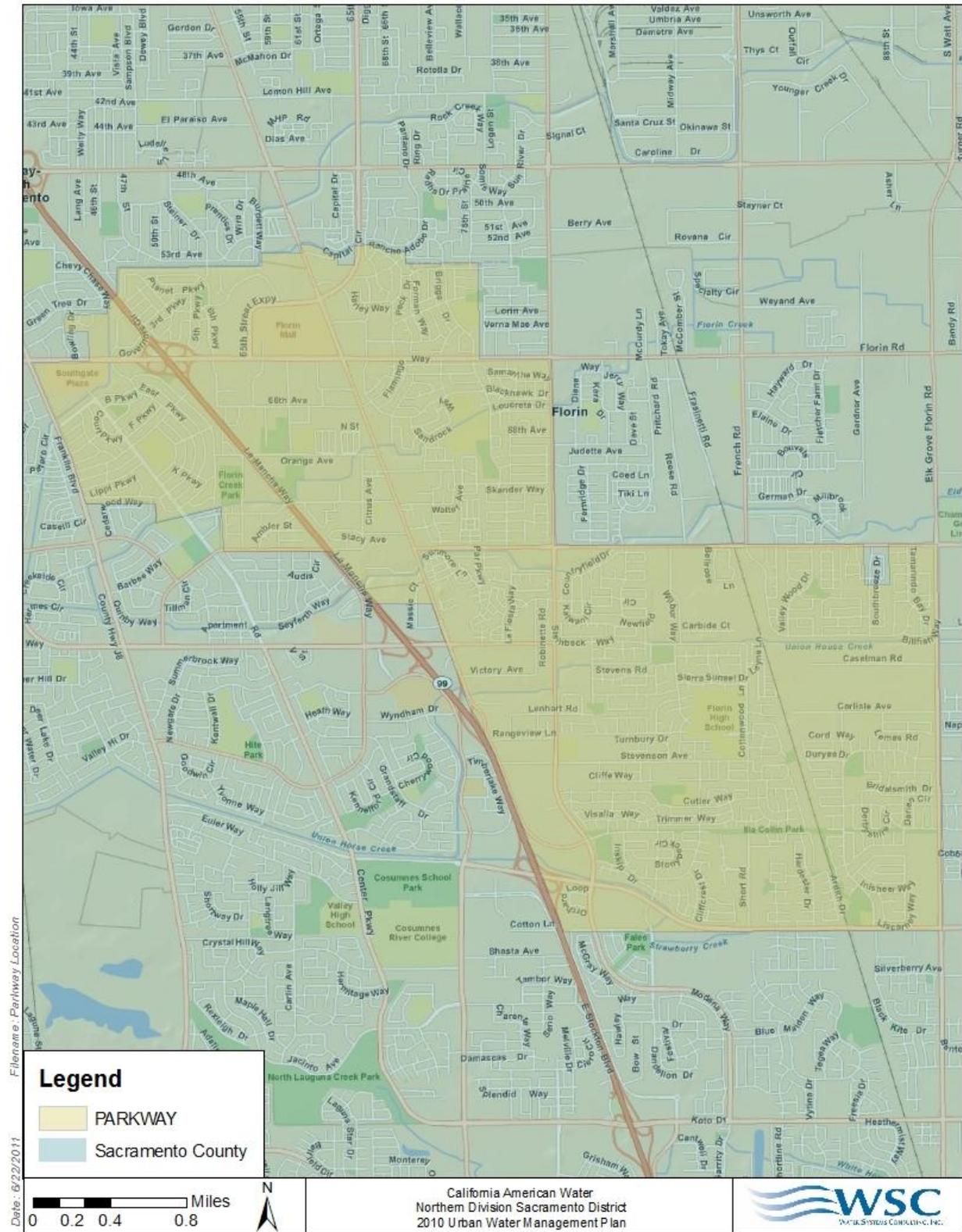


Figure 6. Parkway Service Area

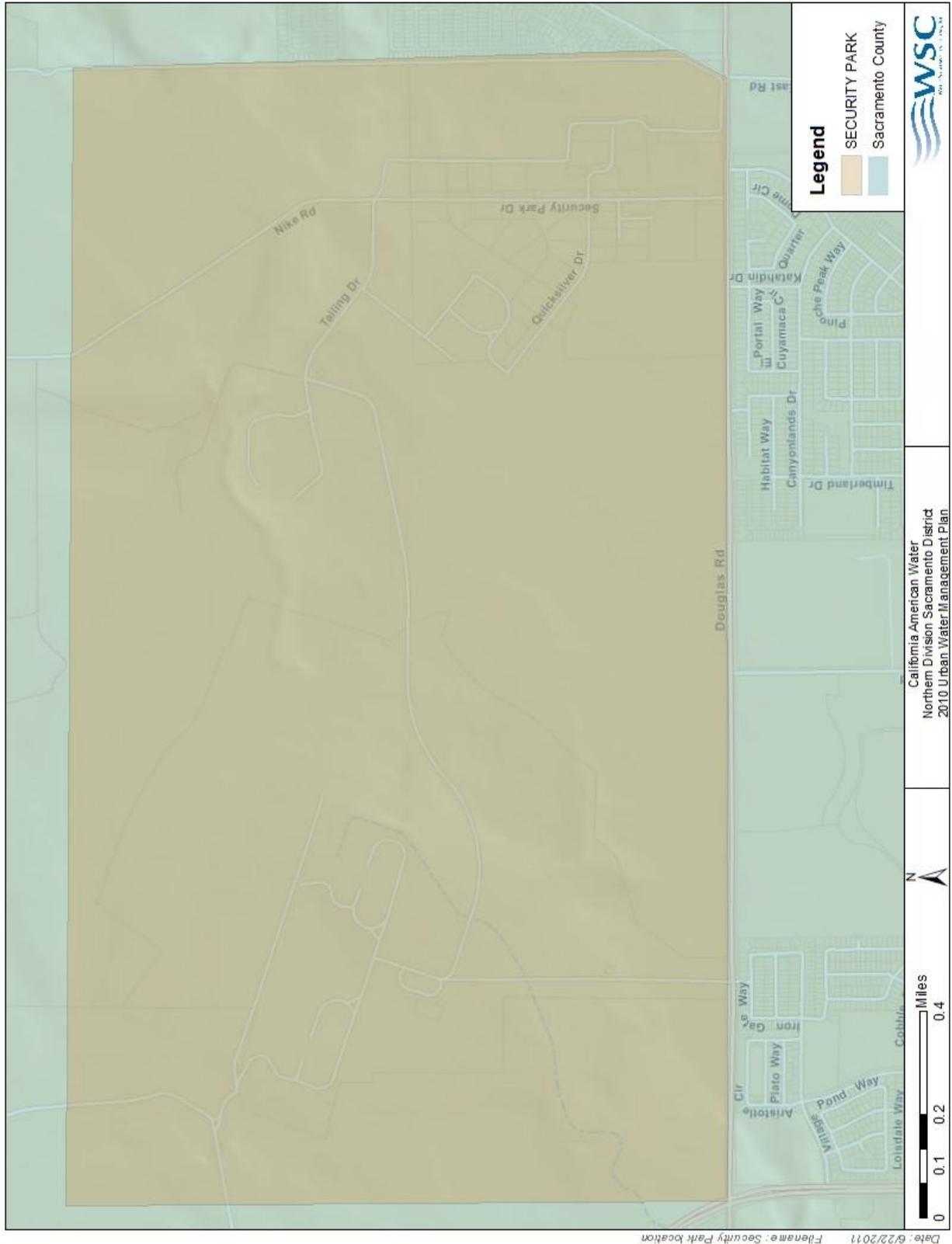


Figure 7. Security Park Service Area



Figure 8. Suburban Rosemont Service Area



Figure 9. Walnut Grover Service Area

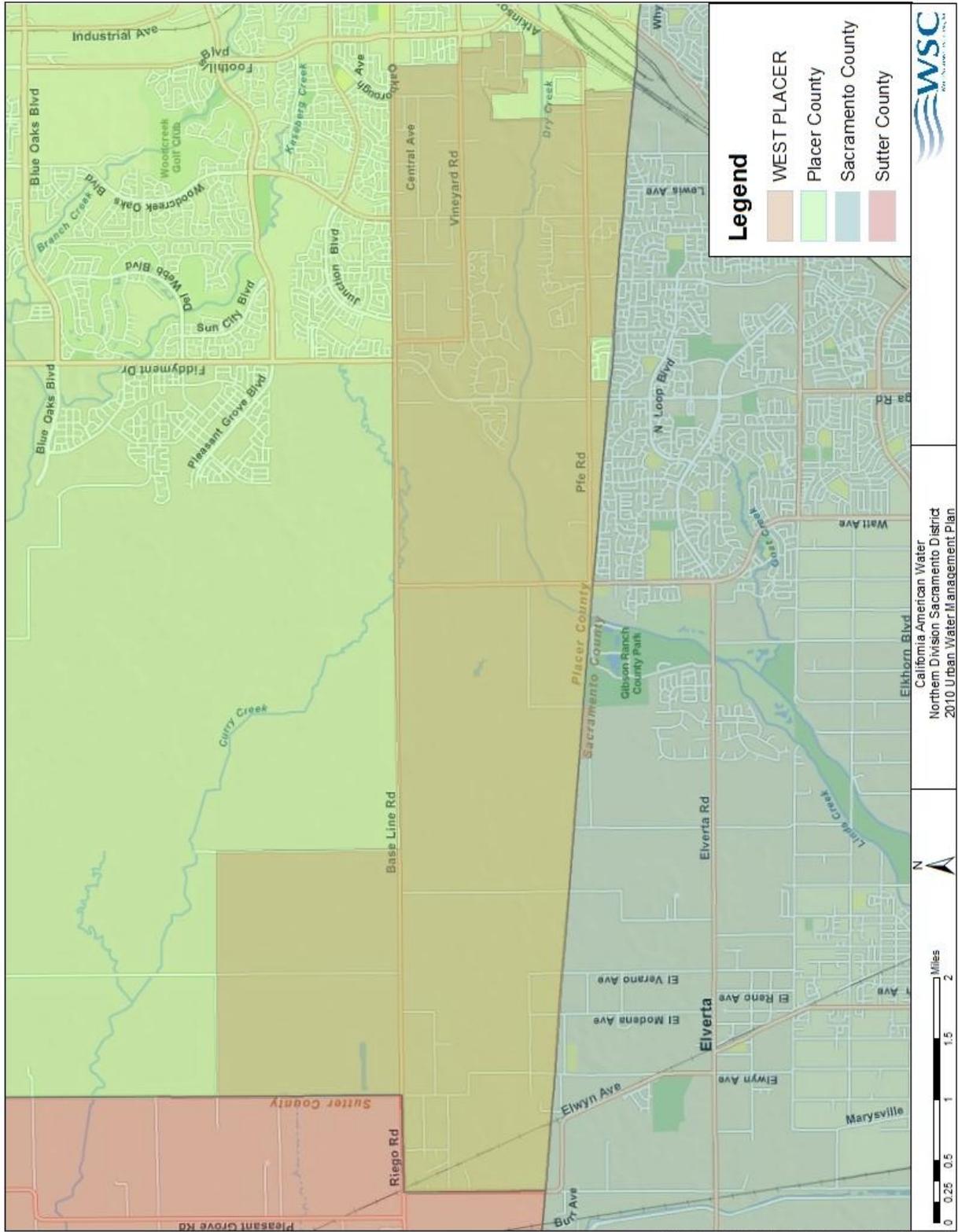


Figure 10. West Placer Service Area

2.1.1 Climate

Sacramento County's climate is characterized as Mediterranean with cool wet winters, and hot dry summers. The wet season is generally October through April. The average annual temperature is 61.4 degrees Fahrenheit. The prevailing winds come from the north in the winter and from the south in the summer. This is due to the north to south orientation of the California Central Valley, located between the Sierra Nevada Mountains to the east, the Coast Ranges to the west, the Klamath Mountains to the north, and the Tehachapi Mountains to the south. Table 4 and Table 5 show monthly climatic factors and annual averages.

Table 4. Precipitation and Evapotranspiration in Sacramento

	January	February	March	April	May	June
Standard Average ETo, in ¹	1.59	2.2	3.66	5.08	6.83	7.8
Average Rainfall, in ²	3.67	3.21	2.63	1.4	0.62	0.16
Average Temperature, °F ²	46.5	51.4	55.3	59.8	65.4	71.4
¹ Data from California Irrigation Management Information System (CIMIS), Station 131 in Fair Oaks, (period of record is from April 1997 through December 2010) http://www.cimis.water.ca.gov/cimis/data.jsp						
² Data from Western Regional Climate Center, Station:(047633) Sacramento 5 ESE 1877-2009, http://www.wrcc.dri.edu/CLIMATEDATA.html						

Table 5. Precipitation and Evapotranspiration

	July	August	Sept.	Oct.	Nov.	Dec.	Annual
Standard Average ETo, in ¹	8.67	7.81	5.67	4.03	2.13	1.59	57.06
Average Rainfall, in ²	0.01	0.03	0.3	0.93	1.98	3.18	18.13
Average Temperature, °F ²	75.4	74.6	71.6	64.1	54.3	47	61.4
¹ Data from California Irrigation Management Information System (CIMIS), Station 131 in Fair Oaks, (period of record is from April 1997 through December 2010) http://www.cimis.water.ca.gov/cimis/data.jsp							
² Data from Western Regional Climate Center, Station:(047633) Sacramento 5 ESE 1877-2009, http://www.wrcc.dri.edu/CLIMATEDATA.html							

2.2 SERVICE AREA POPULATION

Sacramento County's (County) population increased by 18% between 1990 and 2000 and by 15% from 2000 to 2007 (5). The Sacramento Area Council of Governments (SACOG) projects that the County's annual population growth will be in the single digits for each five-year period between 2010 and 2025, with steadily declining growth rates. The population projections for California American Water's service areas are based on 2000 and 2010 census data and growth rates from SACOG's most recent TAZ population projections (6). Appendix R provides additional detail regarding the methodology used to establish population projections. Table 6 and Figure 11 show the historical, current, and projected population.

Table 6. Population Projections (DWR Table 2)

System	2000	2005	2010	2015	2020	2025	2030
Antelope	31,783	32,929	34,074	35,848	36,949	37,476	38,011
Arden	7,740	7,738	7,735	7,861	7,964	8,225	8,495
Isleton	814	807	799	913	1,034	1,071	1,109
Lincoln Oaks	42,674	42,764	42,854	43,319	43,999	44,439	44,884
Parkway	51,406	52,912	54,417	55,214	55,977	57,893	59,874
Security Park	5	4	2	456	5,015	12,569	15,336
Suburban Rosemont	56,420	56,393	56,367	59,804	65,557	72,416	79,992
Walnut Grove	254	255	256	255	255	255	256
West Placer	0	3,454	4,914	8,997	9,888	13,366	18,068
Total	191,097	197,255	201,418	212,669	226,637	247,711	266,025

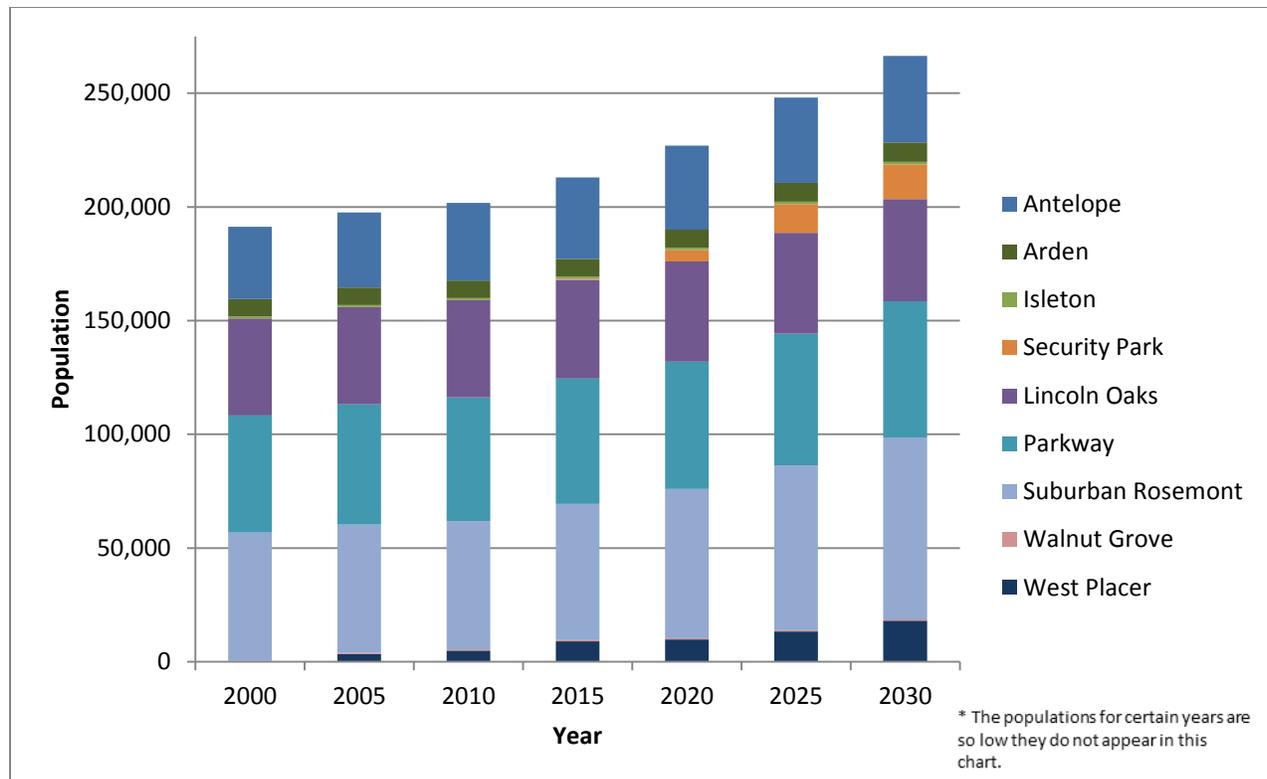


Figure 11. Historical, Current, and Projected Population for the Sacramento District¹

2.2.1 Other Demographic Factors

Sacramento County’s population continues to grow, but there are a few key growth patterns that will affect California American Water directly. Most employment growth is projected to be in the incorporated areas of the County (5). The majority of the service areas discussed in this UWMP encompass unincorporated regions of the County. However, a region that is expected to grow more intensely is the City of Rancho Cordova, which the Suburban Rosemont service area partially overlies, and the Security Park service area completely overlies. According to the County Housing Element, “much of the projected growth [within Sacramento County] will occur in employment centers within the newly incorporated City of Rancho Cordova” (5). The demographic factors affecting each service area vary individually. To make sure the demographic factors in each service area are accurately captured, the growth rates for projections calculated for this UWMP are based on the most detailed level of data available at the time of plan preparation, as explained in Appendix R.

¹ The population projections for California American Water’s service areas are based on 2000 and 2010 census data and growth rates from SACOG’s most recent TAZ population projections (6). Appendix R provides additional detail regarding the methodology used to establish population projections.

3 SYSTEM DEMANDS

The methodology for developing demand projections is included in Appendix R. Demand projections incorporate ongoing and future water conservation efforts to reflect a reduced per capita usage as required by SB7. Appendix J describes the methodology used to develop the SB7 baseline and targets in detail.

3.1 BASELINE AND TARGETS

The calculation of SB7 baseline and target per capita water use is discussed in detail in Appendix J. Table 7 shows the baseline, compliance, interim target, and target per capita water use for the Sacramento District. Figure 12 displays the baseline and targets as well as historical and projected per capita water use.

Table 7. Baseline, Compliance, Interim Target, and Target Per Capita Water Use

Parameter	Water Use (gpcd)
Base Daily Per Capita Water Use (1999-2008)	217
2010 Daily Per Capita Water Use	165
2015 Interim Urban Water Use Target	195
2020 Urban Water Use Target	173

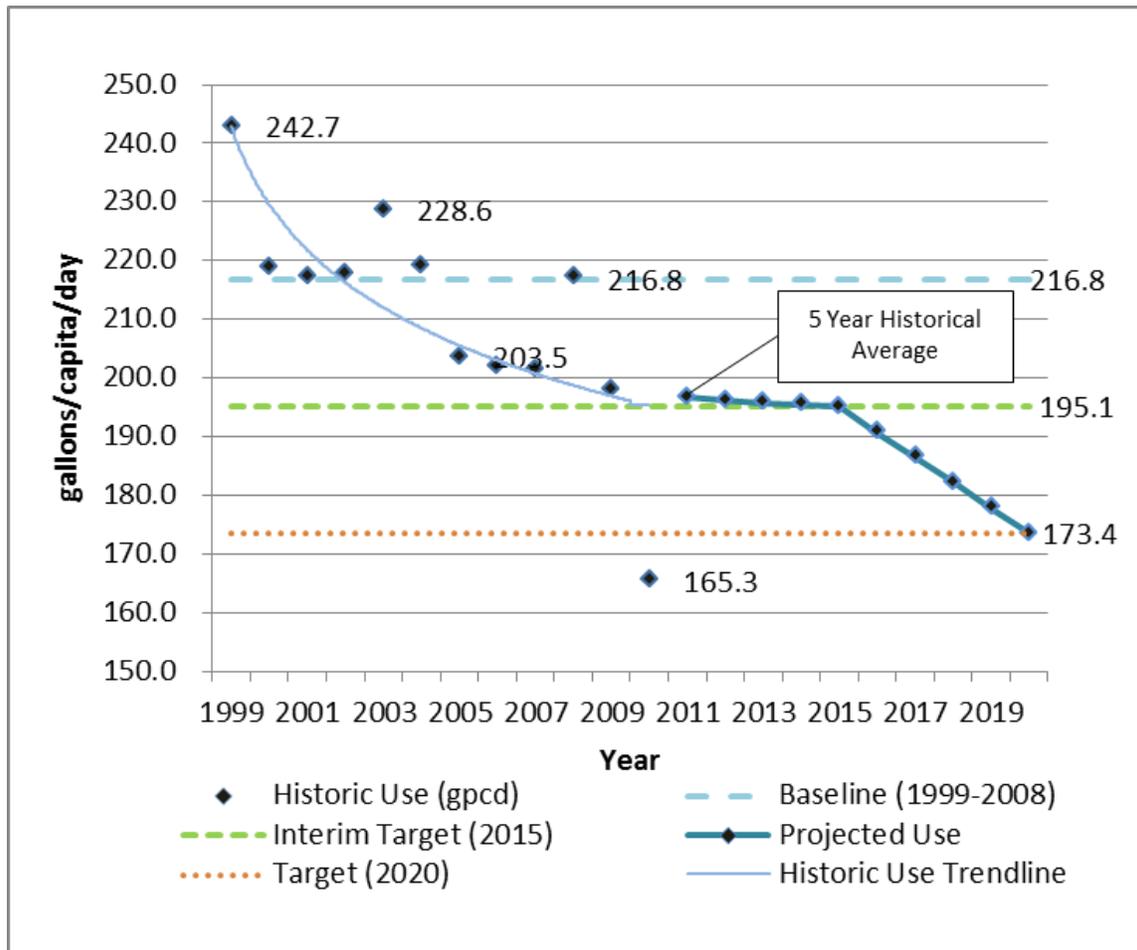


Figure 12. Baseline and Targets

3.2 WATER DEMANDS

The following Tables show the past, current, and projected demands. The “Other” water use sector includes seasonal and fire service connections and deliveries. The methodology for demand projections is outlined in Appendix R. Table 8 shows the past, current, and projected water use by service area.

Table 8. Past, Current, and Projected Deliveries by Service Area, afy

	2005 ¹	2010 ²	2015	2020	2025	2030
Antelope	6,397	4,616	5,814	5,731	5,813	5,896
Arden	1,890	1,460	1,554	1,461	1,509	1,559
Isleton	189	129	176	189	195	202
Lincoln Oaks	8,466	7,396	9,266	8,029	8,109	8,190
Parkway	11,127	9,509	10,915	9,930	10,270	10,622
Security Park	21	13	97	940	2,357	2,876
Suburban Rosemont	11,987	9,748	12,731	11,630	12,847	14,191
Walnut Grove	116	108	105	102	102	102
West Placer	549	776	1,414	1,834	2,480	3,352
Total³	40,743	33,754	42,072	39,846	43,682	46,989

¹ All volume data comes from CDPH Reports and Reports to the SGA.

² Volume data from California American Water 2010 Production Reports.

³ Non-revenue water is not included. To see gross water use, including non-revenue water, see Table 17 and Table 19.

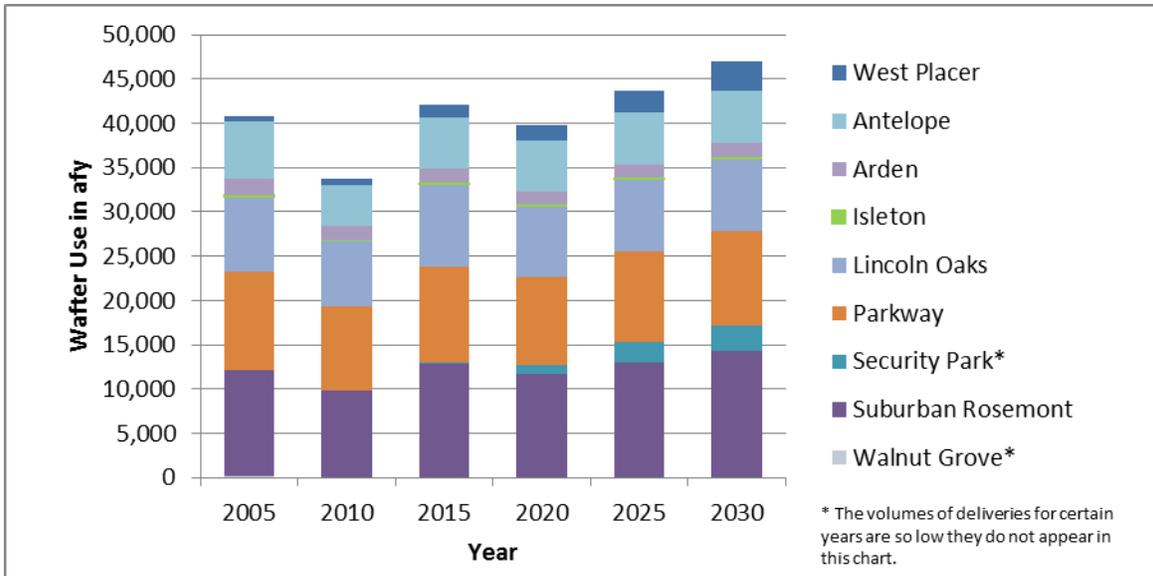


Figure 13. Water Use by Service Area

Table 9. Sacramento District Deliveries 2005, afy (DWR Table 3)

Water use sectors	2005 ¹				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single-family	6,521	4,222	46,405	30,530	34,752
Multi-family	1,993	1,339	631	458	1,797
Commercial	4,651	3,125	1,472	1,068	4,193
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	13,165	8,687	48,508	32,056	40,743

¹ All volume and connections data comes from CDPH Reports and Reports to the SGA.

Table 10. Sacramento District Deliveries 2010, afy (DWR Table 4)

	2010 ¹				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single-family	31,331	17,769	20,100	11,847	29,616
Multi-family	3,001	1,925	0	0	1,925
Commercial	1,889	1,229	0	0	1,229
Industrial	5	3	0	0	3
Institutional/ governmental	305	174	0	0	174
Landscape	311	194	0	0	194
Agriculture	0	0	0	0	0
Other	417	246	523	367	613
Total	37,259	21,540	20,623	12,214	33,754

¹ All volume data comes from 2010 California American Water Production reports. All connections data comes from California American Water's customer database.

Table 11. Sacramento District Deliveries 2015, afy (DWR Table 5)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single-family	54,085	37,011	0	0	37,011
Multi-family	3,115	2,348	0	0	2,348
Commercial	1,981	1,494	0	0	1,494
Industrial	5	4	0	0	4
Institutional/ governmental	320	216	0	0	216
Landscape	350	252	0	0	252
Agriculture	0	0	0	0	0
Other	988	748	0	0	748
Total	60,845	42,072	0	0	42,072

Table 12. Sacramento District Deliveries 2020, afy (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single-family	57,496	34,877	0	0	34,877
Multi-family	3,832	2,407	0	0	2,407
Commercial	2,090	1,385	0	0	1,385
Industrial	6	4	0	0	4
Institutional/ governmental	338	202	0	0	202
Landscape	390	261	0	0	261
Agriculture	0	0	0	0	0
Other	1,088	712	0	0	712
Total	65,239	39,846	0	0	39,846

Table 13. Sacramento District Deliveries 2025 & 2030, afy (DWR Table 7)

Water use sectors	2025		2030	
	Metered		Metered	
	# of Accounts	Volume	# of Accounts	Volume
Single-family	62,878	38,072	66,986	40,626
Multi-family	4,454	2,732	5,082	3,006
Commercial	2,303	1,510	2,467	1,608
Industrial	6	4	6	4
Institutional/ governmental	357	213	378	226
Landscape	448	301	491	336
Agriculture	0	0	0	0
Other	1,356	849	2,128	1,183
Total	71,803	43,682	77,538	46,989

3.2.1 Low-Income Demands

Changes to the California Water Code section 10631.1 since 2005 require demand projections to include projected water use for single-family and multi-family residential housing needed for lower income households. Low-income households are defined as households making less than 80% of mean income. The assumed percentage of existing low-income households is approximately 44% of households in Sacramento County (5). The projected numbers of units that need to be built for lower income households allocated by jurisdiction are described in SACOG's 2006 to 2013 Regional Housing Needs Plan (7). California American Water's service areas overlie various jurisdictions, each with its own number of projected low-income housing units. Estimates of the areas of California American Water's service areas overlying multiple jurisdictions were calculated in GIS. The area percentage of each jurisdiction's total area served by California American Water was applied as the percentage of projected units to be served by California American Water. Once the number of projected lower income units was established, the number of single-family and multi-family units was calculated by applying the percentage of existing single-family and multi-family residential connections. The amount of water used per connection was estimated based on existing connection and delivery data in 2010. All demand for low-income households is included in the total demand projections presented previously. Table 14 shows the portion of the total demand that is assumed to be for low-income household demand.

Table 14. Sacramento District Low-Income Water Demands, afy (DWR Table 8)

Low-income Water Demands	2010	2011	2012	2013
Single-family residential Total	128.52	128.52	128.52	128.52
Antelope	12.67	12.67	12.67	12.67
Arden	2.35	2.35	2.35	2.35
Isleton	1.33	1.33	1.33	1.33
Lincoln Oaks	8.70	8.70	8.70	8.70
Parkway	18.18	18.18	18.18	18.18
Security Park	23.25	23.25	23.25	23.25
Suburban Rosemont	49.77	49.77	49.77	49.77
Walnut Grove	0.41	0.41	0.41	0.41
West Placer	11.88	11.88	11.88	11.88
Multi-family residential Total	5.67	5.67	5.67	5.67
Antelope	0.56	0.56	0.56	0.56
Arden	0.10	0.10	0.10	0.10
Isleton	0.06	0.06	0.06	0.06
Lincoln Oaks	0.38	0.38	0.38	0.38
Parkway	0.80	0.80	0.80	0.80
Security Park	1.03	1.03	1.03	1.03
Suburban Rosemont	2.19	2.19	2.19	2.19
Walnut Grove	0.02	0.02	0.02	0.02
West Placer	0.52	0.52	0.52	0.52
Sacramento District Total Low-income Demand	134.19	134.19	134.19	134.19

3.2.2 Sales to Other Water Agencies

California American Water does not have any contracts to sell water to other agencies as a wholesaler. However, California American Water does provide water to other agencies in emergencies. Table 15 shows the historical, current, and projected amounts of water provided to other agencies.

Table 15. Sacramento District Sales to Other Water Agencies, afy (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
N/A	0	0	0	0	0	0
Total	0	0	0	0	0	0

3.2.3 Additional Water Uses and Losses

Table 16 shows the past, current and projected amount of non-revenue water for the Sacramento District. Non-revenue water is assumed to equal 9.4% in 2005 and 9.5% of gross water use in 2010 through 2030 based on California American Water Staff estimates.

Table 16. Sacramento District Additional Water Uses and Losses, afy (DWR Table 10)

	2005	2010	2015	2020	2025	2030
Non-Revenue	4,227	3,543	4,416	4,183	4,585	4,933
Total	4,227	3,543	4,416	4,183	4,585	4,933

3.2.4 Total Water Use

Table 17 shows the past, current, and projected total water use for the Sacramento District. Total water use includes water delivered to customers, water sold to other agencies, and non-revenue water.

Table 17. Sacramento District Total Water Use, afy (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries	40,743	33,754	42,072	39,846	43,682	46,989
Sales to other water agencies	0	0	0	0	0	0
Non-Revenue	4,227	3,543	4,416	4,183	4,585	4,933
Total	44,970	37,297	46,488	44,029	48,267	51,922

3.3 WHOLESALE WATER DEMAND

California American Water currently purchases water from the City of Sacramento, Placer County Water Agency (PCWA), and Sacramento Suburban Water District (SSWD). Table 18 shows the amount of water projected to be purchased from wholesalers provided that the full supply from each wholesaler is available per the requirements of each water supply agreement.

Table 18. Demand Projections Provided to Wholesale Suppliers, afy (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.

3.4 WATER USE REDUCTION PLAN

In response to multiple group affiliations, MOUs, statutory requirements, and concern for the region’s water supply sustainability, California American Water employs multiple tactics to conserve water and reduce groundwater production. The major tactics currently being implemented by California American Water include a meter retrofit program, conservation measures, CUWCC Best Management Practices (BMPs) implementation, and volumetric rate structure (for metered accounts only). All of these tactics are currently being implemented or are in the process of being implemented in the near future. The projected demand incorporates all of these conservation influences. A copy of the 2009 BMP Annual Report is included in Appendix N.

3.4.1 Meter Retrofit Program

Beginning in 2003, California American Water started an aggressive meter retrofit program to comply with Assembly Bill 2572 and the California Water Code, Section 520-529.5, which require water suppliers in California to install water meters on all water service connections located within their service areas, on or before January 2025. California American Water commissioned an engineering study to develop a prioritized meter retrofit program for the Sacramento District (8). Consistent with the recommendations of this study, the Antelope service area was targeted as the starting point for the retrofit program. The Antelope service area is now 100% metered. As shown in Figure 14, there was a significant reduction in gross water use as well as per capita water use after Antelope became fully metered in 2007. Although not all of the reduction is attributable to metering, it is assumed that metering had a significant impact on water use. It is assumed that metering will have a similar effect in the remaining unmetered service areas. At the end of 2009 approximately 50% of all California American Water connections within the Sacramento District were retrofitted. California American Water intends to continue to install meters so as to have all conversions complete by 2014.

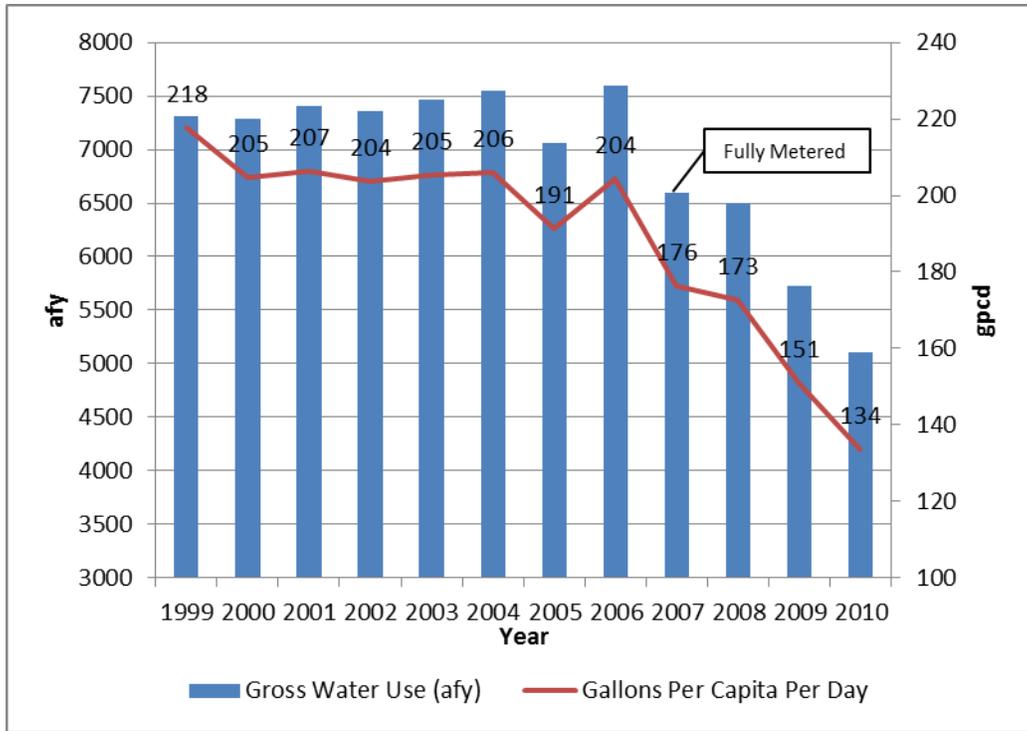


Figure 14. Antelope Gross Water Use and GPCD

3.4.2 BMP Implementation

California American Water implements BMPs, described in section 6, to encourage sound water management practices that have been found to be cost effective and practicable in most instances throughout California.

4 SYSTEM SUPPLIES

4.1 WATER SOURCES

Supply sources for the Northern Division- Sacramento District include groundwater and wholesale purchases (mix of surface water and groundwater). Table 19 shows the current and projected supplies by source.

Table 19. Water Supplies- Current and Projected, afy (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Groundwater production					
Central Basin	20,223	22,022	19,766	21,292	23,069
North Area Basin	13,309	15,656	14,045	14,471	14,803
Solano Subbasin	261	310	321	329	337
Groundwater Subtotal	33,794	37,988	34,132	36,092	38,209
Wholesale purchases					
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Wholesale Subtotal	3,503	8,500	9,897	12,176	13,713
Total	37,297	46,488	44,029	48,267	51,922

4.2 GROUNDWATER

Groundwater is the primary source of supply for the Northern Division Sacramento District. Table 20 shows how much groundwater California American Water has pumped annually to serve the Sacramento District since 2005, and Table 21 shows how much groundwater is projected to be pumped to serve the Sacramento District through 2030.

Table 20. Sacramento District Groundwater – Historic Volume Pumped, afy (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Central Basin	22,774	23,650	24,767	22,800	20,223
North Area Basin	17,972	17,667	19,241	19,238	13,309
Solano Subbasin	300	373	368	286	261
Total groundwater pumped	41,046	41,691	44,377	42,323	33,794
Percent of total water supply	92%	93%	91%	95%	91%

Table 21. Sacramento District Groundwater- Volume Projected to be Pumped, afy (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Central Basin	22,022	19,766	21,292	23,069
North Area Basin	15,656	14,045	14,471	14,803
Solano Subbasin	310	321	329	337
Total groundwater pumped	37,988	34,132	36,092	38,209
Percent of total water supply	82%	78%	75%	74%

4.2.1 Groundwater Basin, Subbasin, and Management Area Boundaries

California American Water’s service areas are all within the boundaries of the Sacramento Valley Groundwater Basin of the Sacramento River Hydrologic Region as defined by DWR in its Bulletin 118 Update 2003 (9). Antelope, Arden, Lincoln Oaks, and West Placer are located within the North American Subbasin. Parkway, Security Park, and Suburban Rosemont are located within the South American Subbasin. Isleton and Walnut Grove are located in the Solano Subbasin. Figure 15 shows California American Water’s location within the DWR hydrologic regions and groundwater basins and subbasins.

The SGA is the management agency responsible for the southern portion of the North American Subbasin, which extends from the American River to the Sacramento-Placer county border as shown in Figure 16. The Sacramento Groundwater Authority Groundwater Management Plan (SGAGMP) refers to this management area as the North Area Basin. A copy of the SGAGMP is included as Appendix P.

The SCGA is the management agency responsible for a majority of the South American Groundwater Subbasin. The Central Sacramento County Groundwater Management Plan (CSCGMP) refers to this management area as the Central Sacramento County Groundwater Basin, or Central Basin, which is depicted in Figure 17 and Figure 18. The CSCGMP describes the boundary of the Central Basin as follows:

“Essentially, the Central Basin boundary overlies State Department of Water Resources (DWR) South American Subbasin (DWR Bulletin 118-2003) [See Figure 17] , however, the boundaries are slightly different because the Central Basin boundary was developed from the Sacramento County IGSM grid” (4).

The RWA created the American River Basin Integrated Regional Water Management Plan (ARB IRWMP), which addresses the entire American River Basin (ARB) shown in Figure 19. The ARB IRWMP divides the groundwater basin into three regional areas in the same manner as the CSCGMP shown in Figure 18.

Currently, there is no groundwater management plan for the Solano Subbasin. The Solano Subbasin is shown in Figure 20.

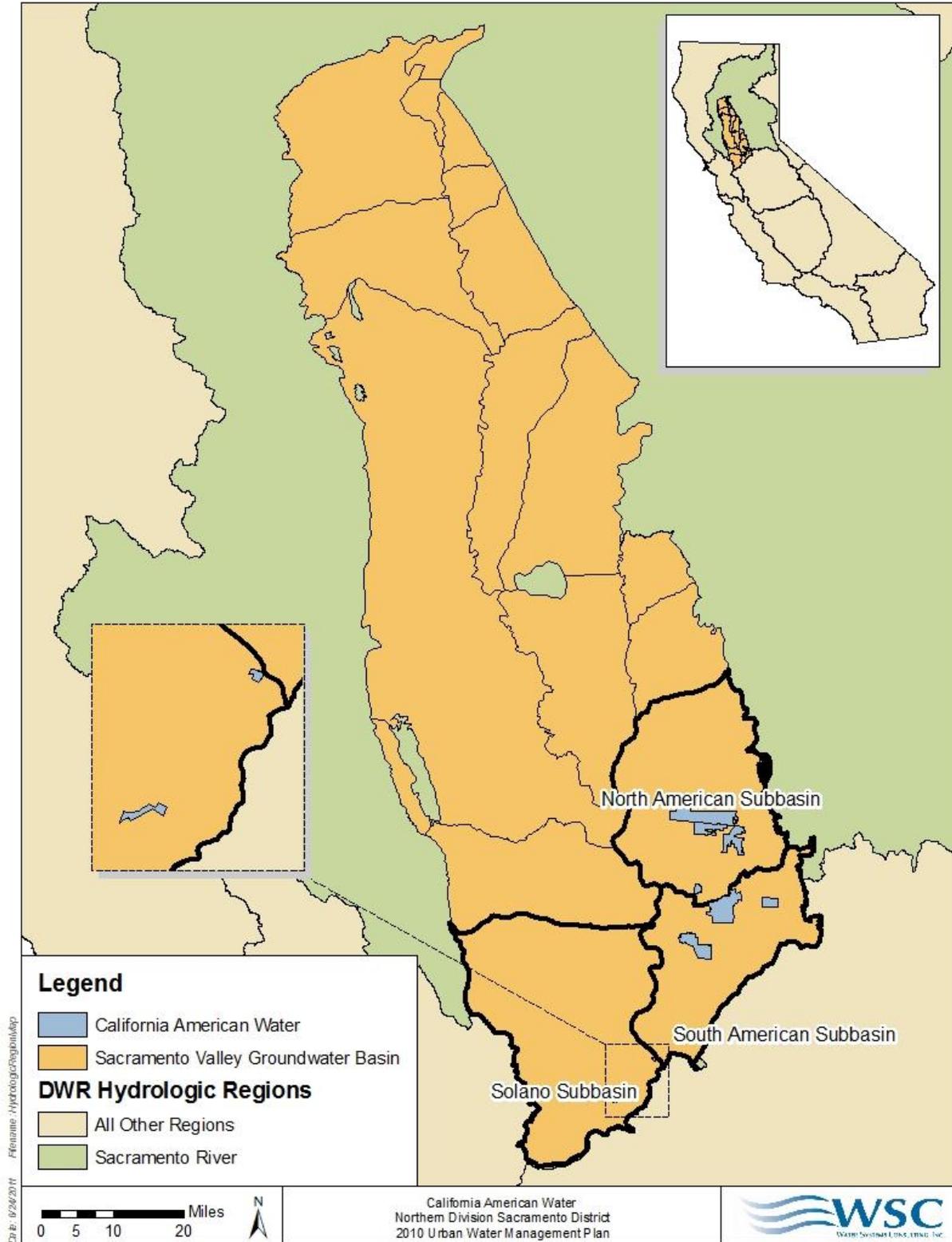


Figure 15. DWR Hydrologic Region and Groundwater Basins

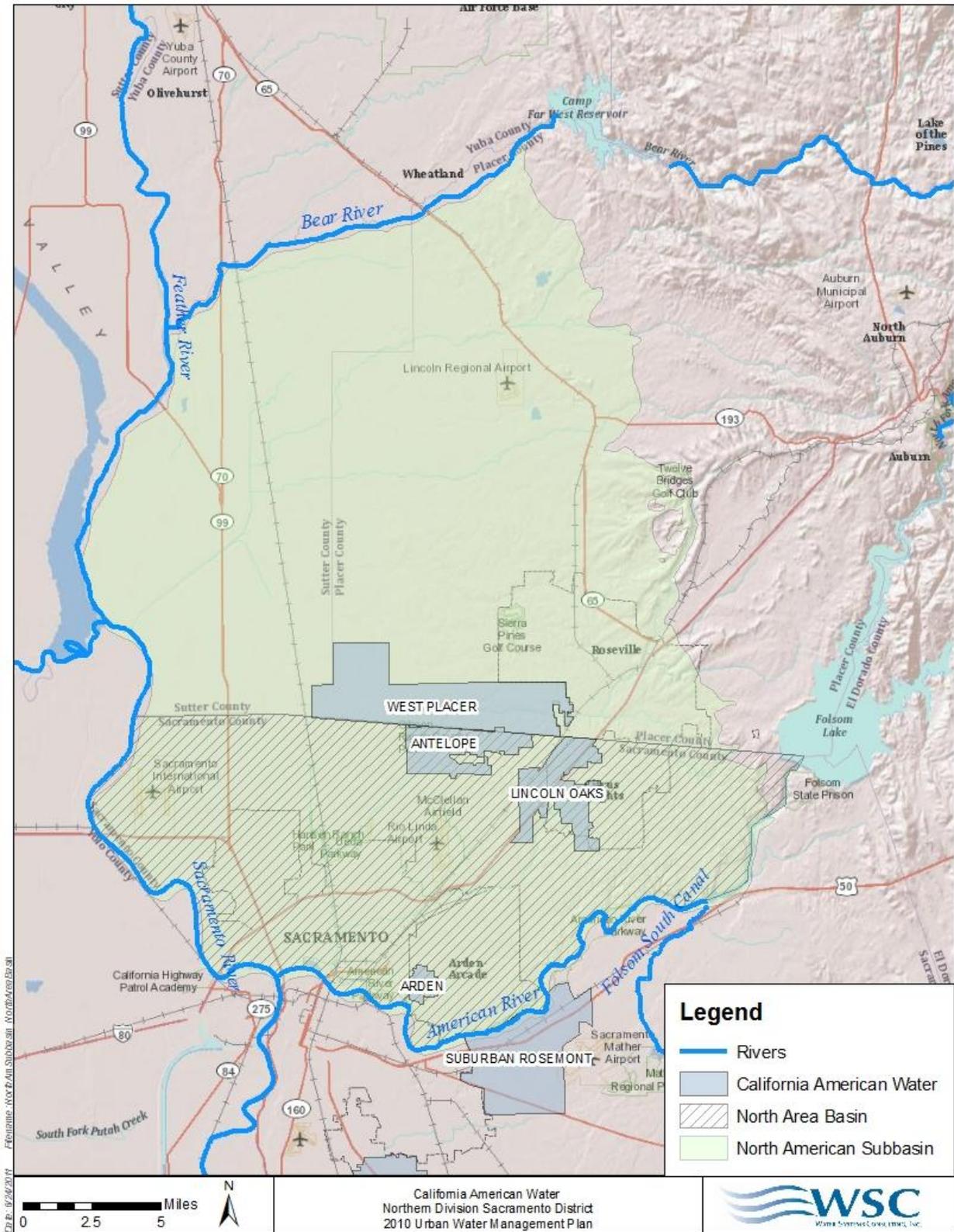


Figure 16. North Area Basin and North American Basin

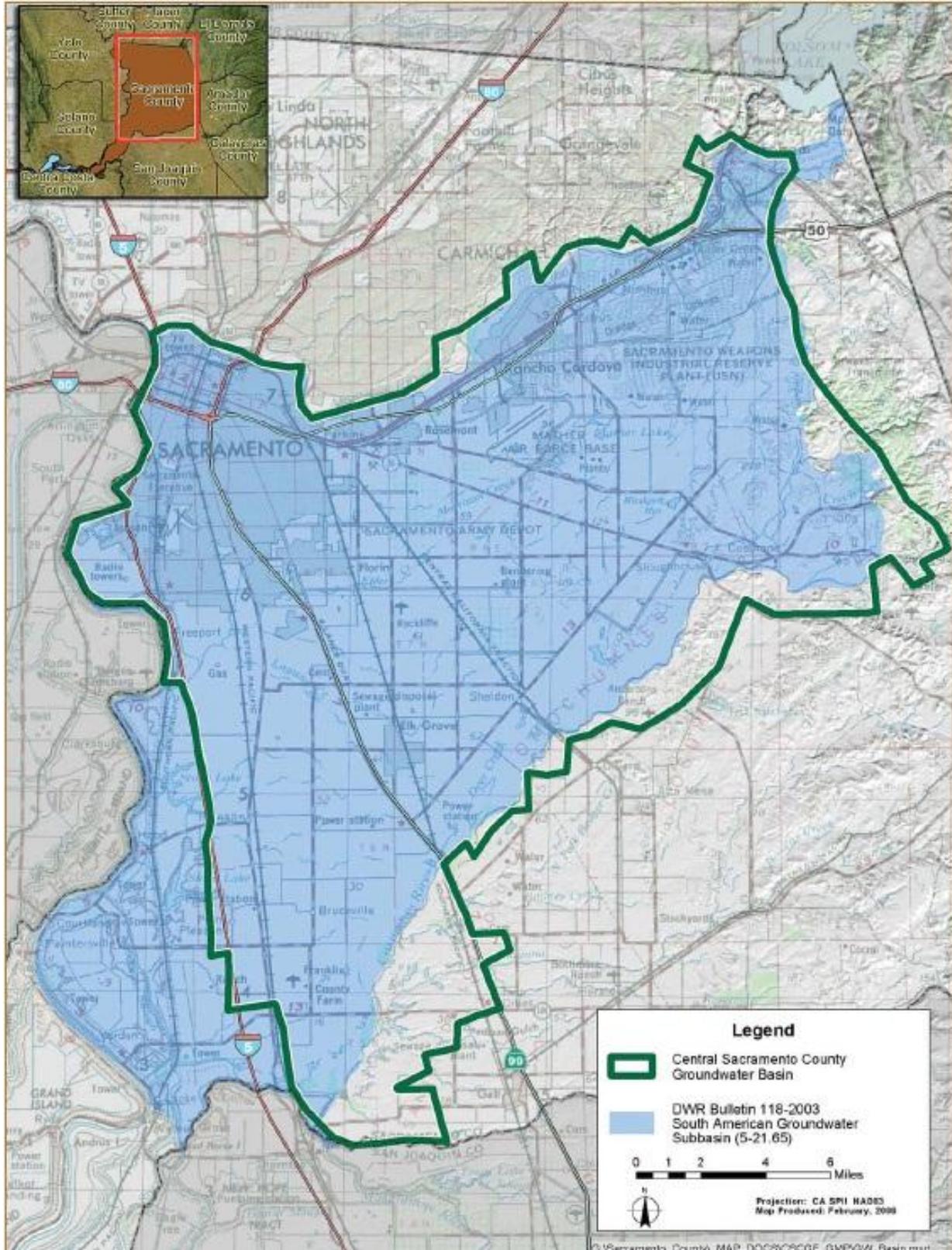


Figure 17. Central Basin Overlying South American Subbasin (4)

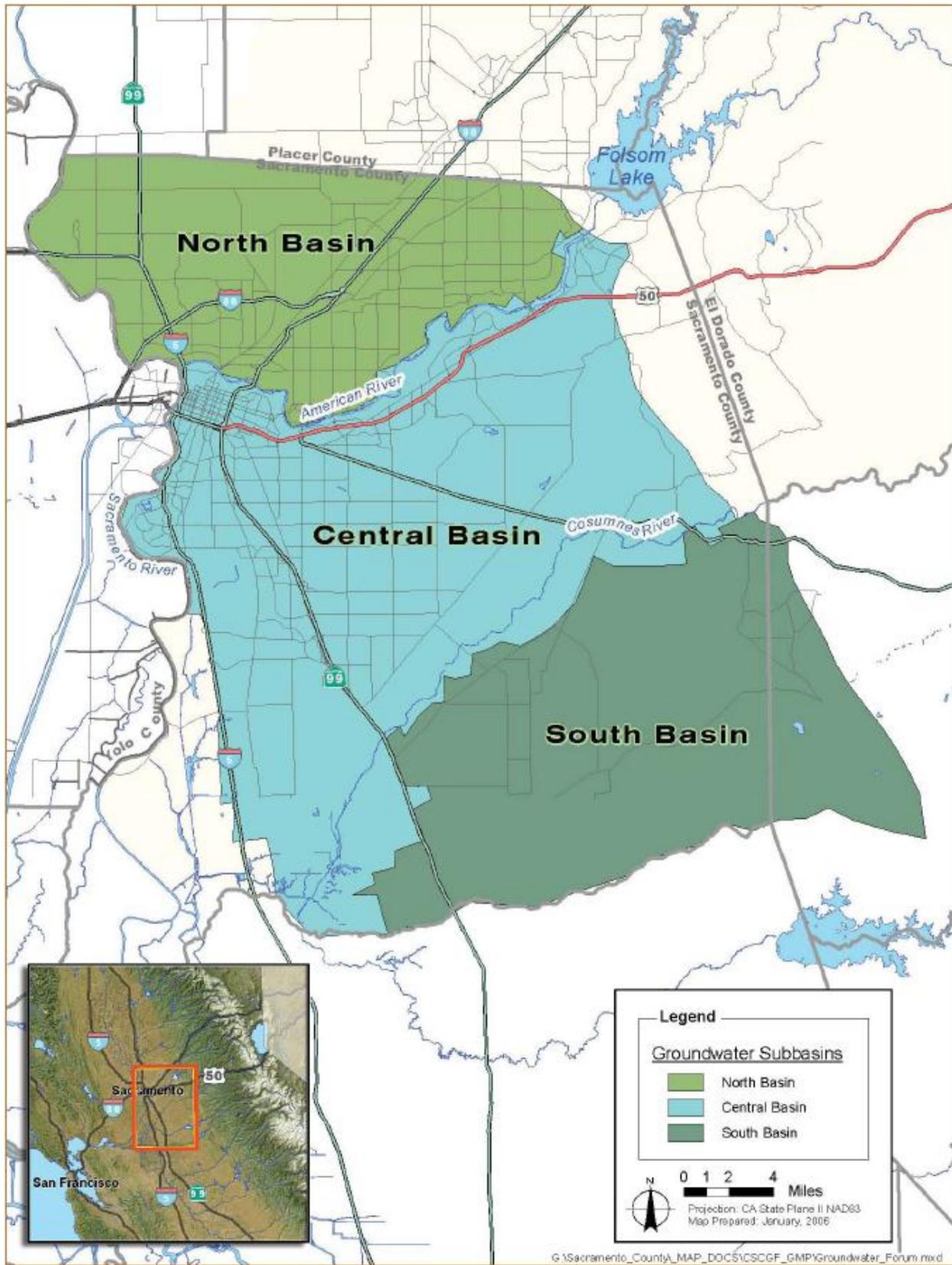


Figure 18. CSCGMP Sacramento County Groundwater Basins (4)

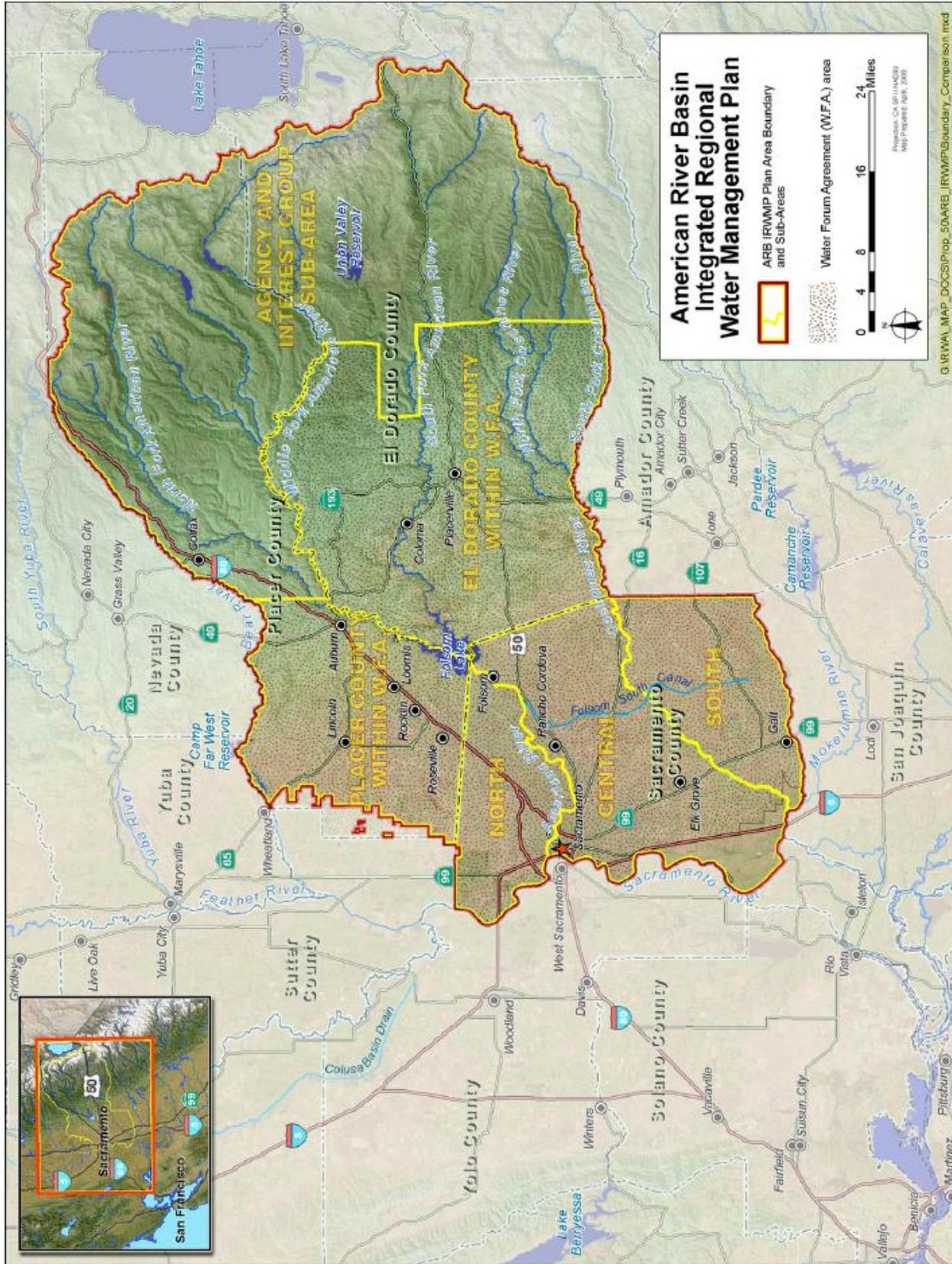


Figure 19. American River Basin and IRWMP Areas (10)

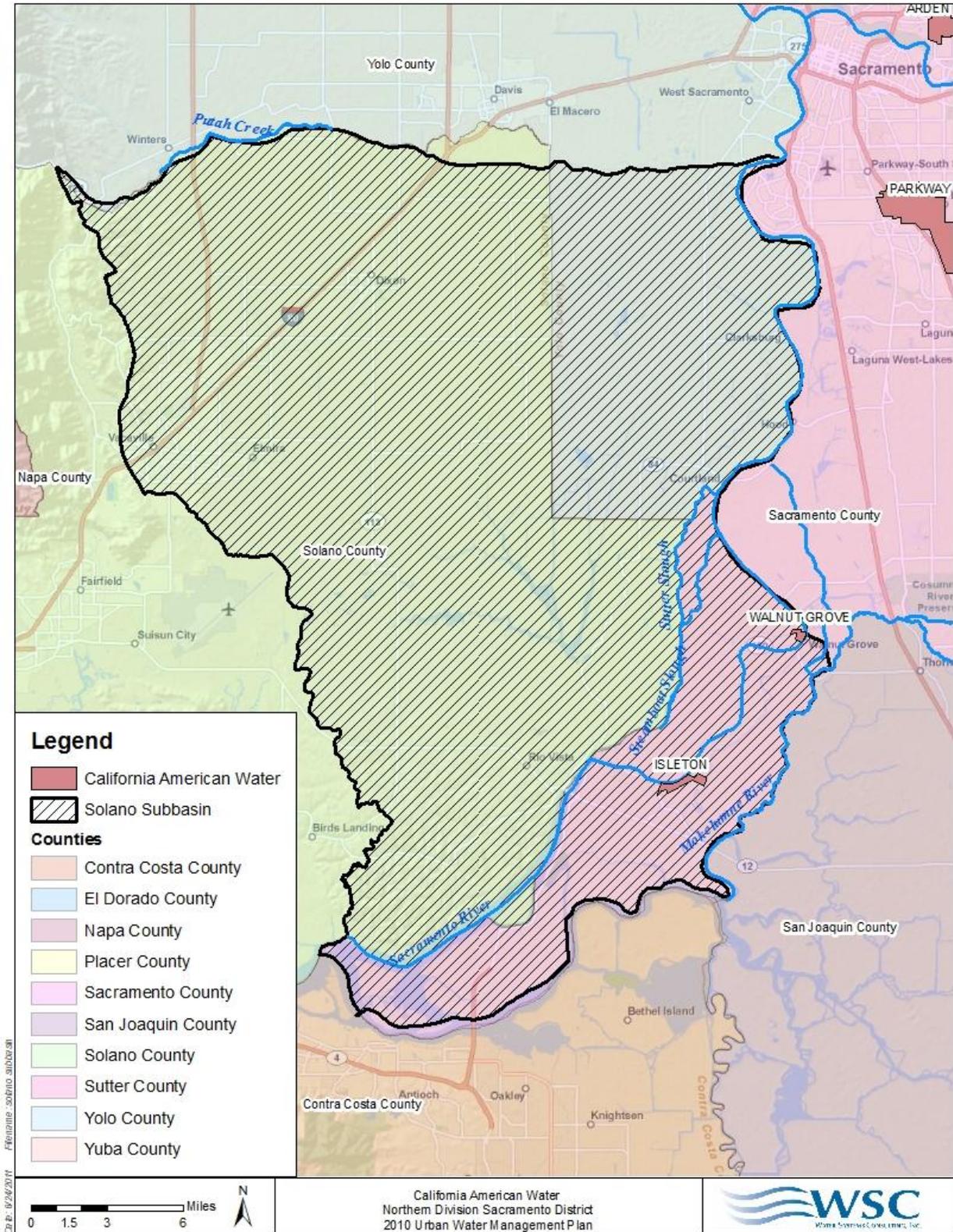


Figure 20. Solano Subbasin

The groundwater basin terminology used in discussing each service area shall reflect the basin, subbasin and/or management area name as presented in its associated groundwater management plan (i.e, sections discussing West Placer will refer to the North American Subbasin; sections discussing Antelope, Arden, and Lincoln Oaks will refer to the North Area Basin; the sections discussing Parkway, Security Park, and Suburban Rosemont will refer to the Central Basin; and sections discussing Isleton and Walnut Grove will refer to the Solano Subbasin).

4.2.2 North American Subbasin

The North American Subbasin is a subbasin of the Sacramento Valley Groundwater Basin. Antelope, Arden, Lincoln Oaks, and West Placer are located within the North American Subbasin. It is shown in Figure 16. The North American Subbasin covers approximately 351,000 acres spread across Sutter, Placer, and Sacramento Counties.

4.2.3 North Area Basin

The North Area Basin comprises the southern portion of the North American Subbasin as shown in Figure 16. The North Area Basin covers an area of 125,000 acres bordered by the Sacramento-Placer County line to the north, the Sacramento River to the west and the American River to the south and east. The North Area Basin is comprised of

“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” (11).

These formations are composed of “inter-bedded sand, silt, and clay, interlaced with coarse-grained stream channel deposits” (11). These formations are about 2,000 feet at their maximum thickness under the Sacramento River and thin to a thickness of a few hundred feet thick along the Sierra Nevada foothills to the east. The primary water-bearing formations are the Laguna and Mehrten formations.

Intense production and use of North Area Basin groundwater has resulted in a general lowering of groundwater elevations near the center of the basin. Evidence of this lowering groundwater elevation has been noted as early as 1968 and has developed into a cone of depression. As of 2008, the cone of depression was approximately 40 feet below mean sea level (MSL) as shown in Figure 21. Long-term monitoring records show that elevations declined steadily from around the 1950s to the mid-1990s (Figure 22). Since the mid-1990s, groundwater elevations have stabilized, due in large part to regional water resource management efforts.

The WAF developed by the SGA is intended to establish policies and procedures for encouraging conjunctive use within the estimated sustainable yield of the basin (Appendix L). California American Water’s pumping goal, as shown in Table 1 of the draft WAF, is approximately 17,995 afy. To achieve this pumping goal, California American Water aims to reduce groundwater production in the SGA through the importation of surface water from SSWD (see section 4.3) and demand management strategies (see section 6).

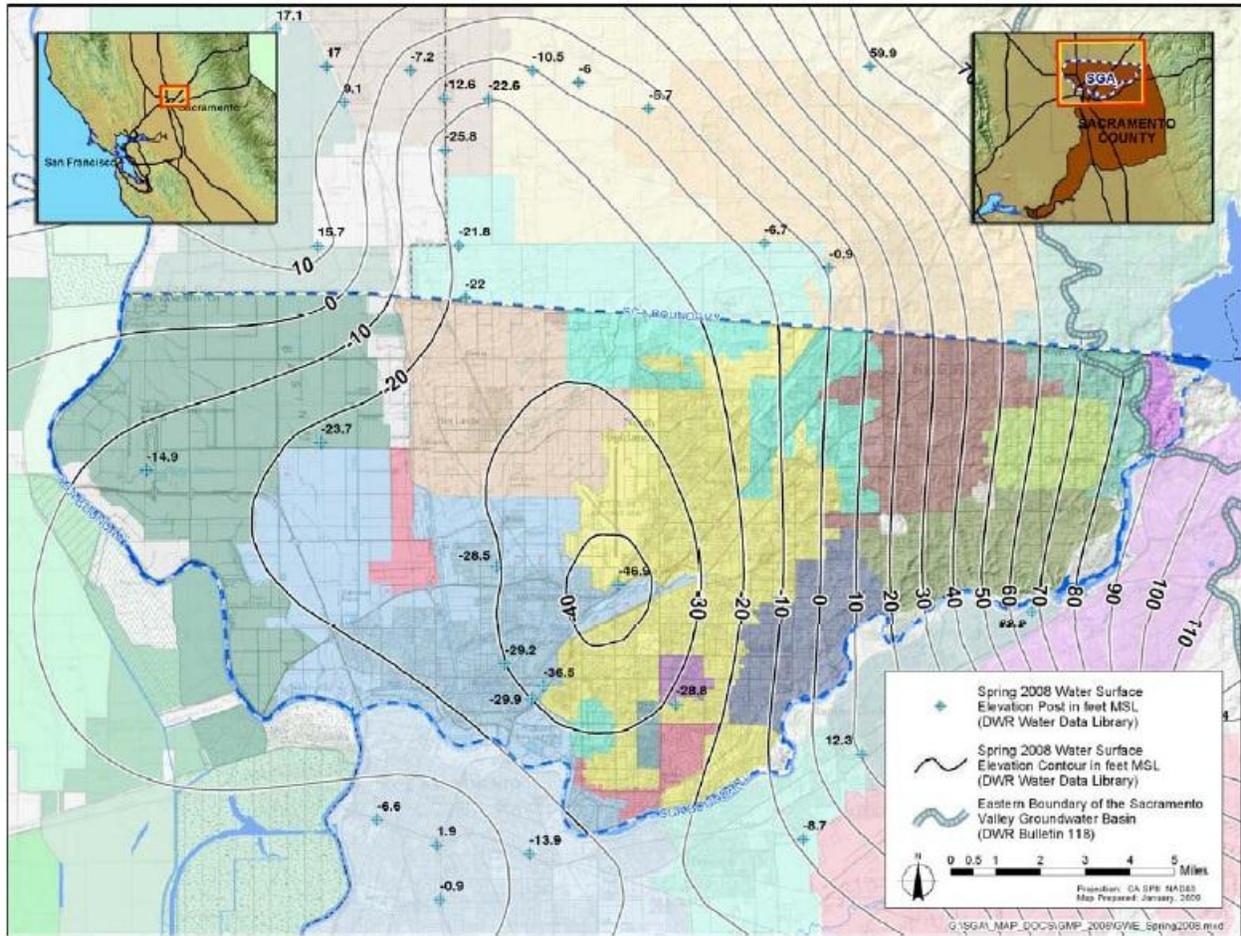


Figure 21. Spring 2008 Groundwater Elevation Contours for the North Area Basin (12)

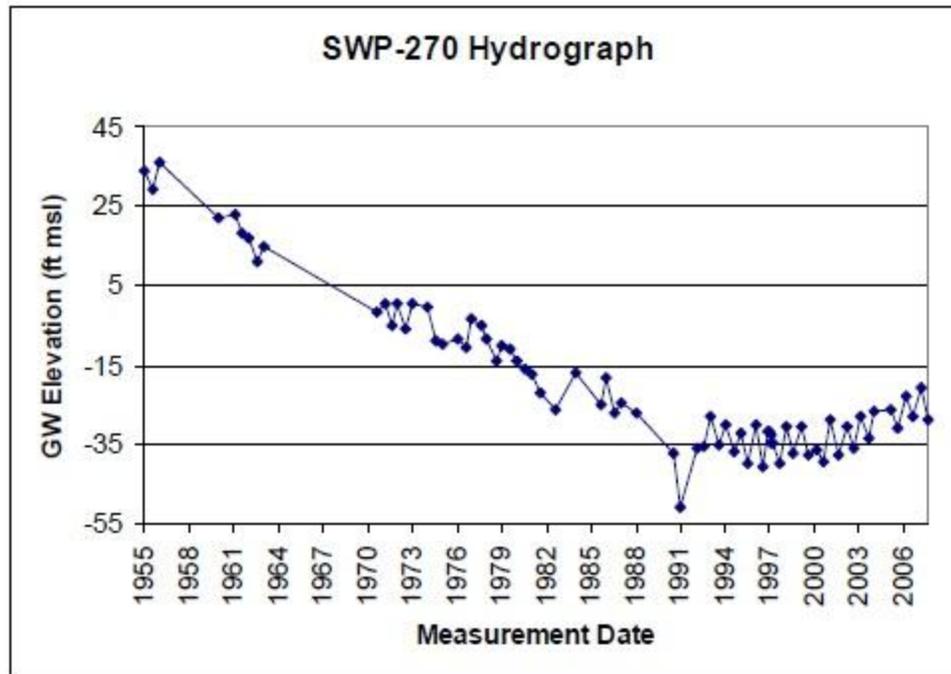


Figure 22. Long-Term Hydrograph in the North Area Basin (12)

4.2.4 Central Basin

The Central Basin comprises the northern portion of the South American Subbasin as shown in Figure 17. The Central Basin covers 386 square miles and is bordered on the east by the Sierra Nevadas, on the west by the Sacramento River, on the north by the American River, and on the south by the Cosumnes and Mokelumne Rivers. These rivers generally create a groundwater divide between a shallow aquifer known as the Modesto Formation, and a deep aquifer, known as the Mehrten Formation. The deep aquifer has subsurface inflow and outflow interaction with adjacent subbasins. The deep aquifer is separated from the shallow aquifer by a semi-confining clay layer. The cumulative thickness of these layers increases in a wedge-like form from a few hundred feet near the Sierra Nevada foothills in the east to over 2,500 feet along the western edge of the subbasin (9). Recharge of the aquifer occurs mainly along active river and stream channels and along the eastern boundary of Sacramento County where alluvial deposits and consolidated rocks from the Sierra Nevada are deposited. This recharge is considered subsurface recharge along with underground inflows and outflows with adjacent subbasins. Deep percolation from applied surface water and precipitation are also sources of recharge.

Intense production and groundwater use has resulted in a general lowering of groundwater elevations near the center of the basin, similar to the North Area Basin. Multiple cones of depression have merged into a single cone of depression located in the south central portion of the Central Basin. The groundwater elevation declined from the 1950s to the mid-1990s and has since stabilized. Spring 2004 groundwater elevation contours are shown in Figure 23.

4.2.5 Solano Subbasin

The Solano Subbasin is located to the southwest of the South American Subbasin, in the southwestern portion of the Sacramento Valley Groundwater Basin. It spans approximately 425,000 acres across Solano, Sacramento, and Yolo Counties. The Solano Subbasin is bordered by the Putah Creek to the north, the Sacramento River to the east, the Mokelumne River to the southeast, and the San Joaquin River to the south. The Solano Subbasin's water bearing formations are comprised of sedimentary continental deposits. The deposits vary in thickness from a minimal thickness along the Coast Range to the west to almost 3,000 feet along the eastern border of the basin. The Tehama Formation is the most productive water-bearing unit underlying the Solano Subbasin. The Tehama Formation is comprised of moderately compacted silt, clay, and silty fine sand with pockets of sand and gravel, silt and gravel, and cemented conglomerate. There are brackish and saline water-bearing units underlying the Tehama Formation composed of sedimentary rocks.

4.2.6 Groundwater Rights

The basins underlying California American Water's service areas are not adjudicated. The different types of groundwater rights for basins that are not adjudicated include overlying rights, correlative rights and appropriative rights. California American Water exercises an appropriative right. An appropriative right applies:

"to pumpers who use water on nonoverlying lands... or deliver water to parcels they do not own. Appropriative use of groundwater is limited to water in excess of that required by overlying users. Unlike appropriative rights for use of surface water, no formal regulatory permitting process exists for appropriative use of groundwater" (4).

California American Water uses water in excess of that required by overlying users and puts the extracted groundwater to beneficial use. For the purposes of this plan, the appropriative pumping right of California American Water is assumed to equal California American Water's maximum historical pumping.

The WAF provides an estimate of California American Water's average pumping in the North Area Basin from 1993 through 1997, prior to the formation of the SGA. California American pumped an estimated 20,351 afy on average. The WAF estimates California American Water's pumping goal to be about 17,995 afy. For the purposes of this UWMP, it is assumed that groundwater pumping in the North Area Basin meets the goal shown in the WAF. See Table 1 in Appendix L for more detail on how these estimates were developed.

4.3 SURFACE WATER

California American Water has three wholesale supply sources that provide surface water: the City of Sacramento (City), Placer County Water Agency (PCWA), and Sacramento Suburban Water District (SSWD). California American Water plans to construct an intertie with Zone 40 of the Sacramento County Water Agency (SCWA) and purchase wholesale supplies to serve its Security Park service area. Each of these wholesale supplies is described in more detail below.

4.3.1 City of Sacramento

Arden, Parkway, and Suburban Rosemont lie within the Place of Use (POU) of the City’s American River Water Rights. The POU for the City’s American River Water Rights is shown in Figure 24. In 1997, the predecessor to California American Water and the City of Sacramento entered into a Wholesale Water Supply Agreement by which the City could divert, treat and sell surface water to California American Water for use within the Parkway service area. As of December 2010, the City and California American Water modified that agreement (13).

The new agreement allows California American Water to receive a maximum of 3.46 mgd non-firm capacity during off-peak periods (October 15th through May 14th) in addition to the 2.3 mgd firm capacity, for a total maximum delivery rate of 5.76 mgd utilizing firm and non-firm capacity. During on-peak periods (May 15th through October 14th) California American Water will receive a firm capacity of 2.3 mgd. The deliveries are subject to the same conditions and requirements as the City’s existing or future water rights and entitlements, and can be delivered into any of California American Water’s service areas within the City’s American River POU (including Arden, portions of Parkway, and portions of Suburban Rosemont, as shown in Figure 24).

Water provided by the City will be primarily surface water except during periods when Lower American River flow is below the Hodge Flow Criteria. During periods when Hodge Flow Criteria are in effect, supplemental groundwater will be produced by the City and delivered instead of surface water when demands exceed 1.13 mgd. This mixed supply is available from the City until the maximum firm capacity of 2.3 mgd is reached. The City’s water will not be available to California American Water’s Suburban Rosemont service area until a new pump station is constructed by California American Water. The construction of the pump station is anticipated to be completed by 2012. Table 22 shows the City’s current and projected supplies.

Table 22. City of Sacramento Average Year Supply, afy¹

Water purchased from:	2010	2015	2020	2025	2030	2035
Supplier-Produced Groundwater ⁽¹⁾	18,377	22,300	22,300	22,300	22,300	22,300
Supplier-Produced Surface Water ⁽²⁾	94,990	142,735	149,652	166,869	182,762	195,062
Transfers In	0	0	0	0	0	0
Exchanges In	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Desalinated Water	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	113,367	165,035	171,952	189,169	205,062	217,362

¹ Source: City of Sacramento 2010 Urban Water Management Plan Administrative Draft (14)

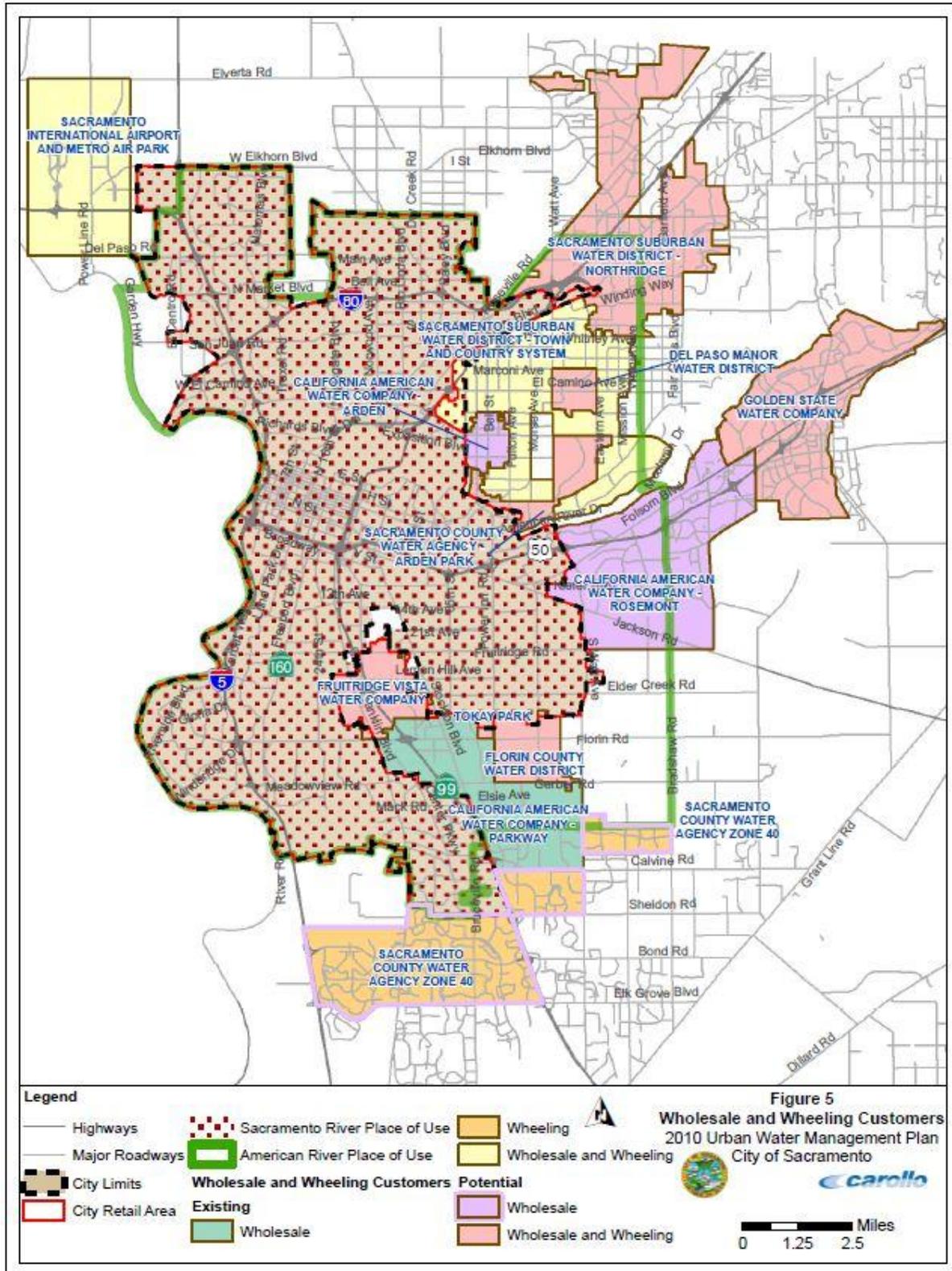


Figure 24. City of Sacramento Places of Use (14)

4.3.2 Placer County Water Agency

California American Water purchases wholesale surface water from the Placer County Water Agency for delivery to its customers in the West Placer service area. In 2002, California American Water and PCWA entered into a wholesale water supply agreement (15). There is language in the agreement that allows only surface water to be delivered within the West Placer service area. California American Water is also required to use only surface water in West Placer based on its franchise agreement with Placer County. It is assumed that PCWA will supply all water to West Placer and the agreement between California American Water and PCWA will be restructured if required. Table 23 shows PCWA’s current and projected supplies.

Table 23. Placer County Water Agency Average Year Supply, afy¹

Placer County Water Agency Supply Sources	2010	2015	2020	2025	2030
PCWA					
Middle Fork Project	120,000	120,000	120,000	120,000	120,000
Central Valley Project	35,000	35,000	35,000	35,000	35,000
PG&E	100,400	100,400	100,400	100,400	100,400
City of Lincoln	3,300	3,300	3,300	3,300	3,300
City of Roseville-Central Valley Project	32,000	32,000	32,000	32,000	32,000
South Sutter Water District	5,000	5,000	5,000	5,000	5,000
Total	295,700	295,700	295,700	295,700	295,700
¹ Source: Adapted from Placer County Water Agency Integrated Water Resources Plan (16).					

4.3.3 Sacramento Suburban Water District

SSWD has a water sale agreement with PCWA, which provides a POU enveloping California American Water’s Antelope and Lincoln Oaks service areas (see Figure 25). In 2005, California American Water entered into a Wholesale Water Supply Agreement with SSWD that allows SSWD to sell surface water to California American Water on a wholesale basis as water is available (17). The wholesale water is surplus to the demands of customers within SSWD’s service area boundary, and is subject to the terms and conditions within the Water Supply Agreement between SSWD and PCWA. California American Water’s minimum purchase amount from SSWD is currently 1500 afy, and increases to 2000 afy starting in 2012 as shown in Table 24. Table 25 shows SSWD’s current and projected supplies.

Table 24. SSWD Water Supply, California American Water Minimum Purchases, afy

Year	2005	2006	2007	2008	2009	2010	2011	All Following Years
California American Water minimum purchases from SSWD	800	1,000	1,000	1,000	1,500	1,500	1,500	2,000

Table 25. Sacramento Suburban Water District Average Year Supply, afy¹

Water Supply Sources	Wholesaler Supplied Volume (Yes/No)	2010	2015	2020	2025	2030	2035
Wholesaler - USBR (215)	Yes	1,000	1,000	1,000	1,000	1,000	1,000
Wholesaler - PCWA	Yes	29,000	29,000	29,000	12,000	12,000	12,000
Wholesaler - City of Sacramento	Yes	9,300	9,300	9,300	9,300	9,300	9,300
Supplier-produced groundwater	No	31,241	31,241	31,241	31,241	31,241	31,241
Supplier-produced surface water	No	-	-	-	-	-	-
Transfers in	No	-	-	-	-	-	-
Exchanges in	No	-	-	-	-	-	-
Recycled water	No	-	-	-	-	-	-
Desalination water	No	-	-	-	-	-	-
Total		70,541	70,541	70,541	53,541	53,541	53,541

¹ Source: Table Adapted from SSWD 2010 Urban Water Management Plan (18).

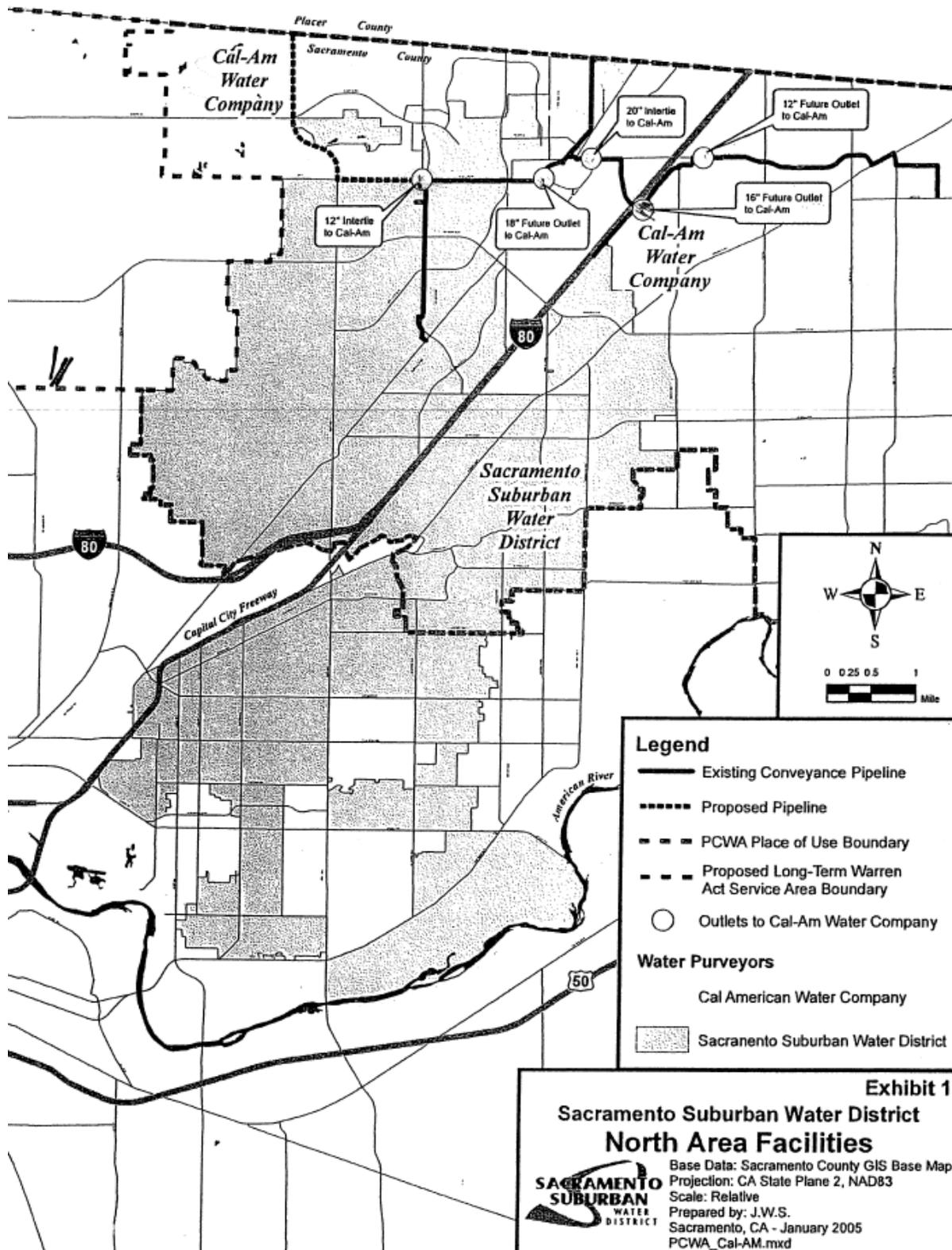


Figure 25. SSWD PCWA Place of Use (19)

4.3.4 Sacramento County Water Agency (Zone 41)

California American Water plans to purchase and receive water from the Sacramento County Water Agency (SCWA) as the primary source of supply for the Security Park system. SCWA identified California American Water as a wholesale customer in its Zone 40 Groundwater Management plan (20) as well as its Zone 41 2005 Urban Water Management Plan (21). Figure 26 shows Security Park's location within the Zone 40 service area. California American Water and SCWA are currently in the process of developing a wholesale water supply agreement. Further discussion of the SCWA supply is described in section 4.7.3. It is assumed by 2015 that 100% of the supply in Security Park will be provided by SCWA. Table 26 shows the projected sources of supply for SCWA.

Table 26. SCWA Average Year Supply, afy¹

Water Supply Sources	Wholesaler Supplied Volume (Yes/No)	2010	2015	2020	2025	2030	2035
Supplier-produced groundwater to serve Zone 40	no	35,000	20,000	15,000	20,000	25,000	15,000
Wholesaler – (City of Sacramento) to serve portion of Zone 40 in City of Sacramento’s American river POU	yes	0	0	0	0	9,300	9,300
Supplier-produced surface water to Serve Zone 40: U.S. Bureau of Reclamation – CVP Supply (SMUD 1, SMUD 2, and Fazio Water)	yes	12,320	25,000	30,000	35,000	40,000	45,000
Supplier-produced surface water to Serve Zone 40: Appropriate Water – SWRCB Permit 21209	no	0	10,000	12,500	15,000	17,500	21,700
Other surface water transfers to serve Zone 40	no	0	0	0	0	0	5,200
Recycled water for Zone 40	yes	1,000	3,000	4,400	4,400	4,400	4,400
Remediated groundwater to serve Rio del Oro in Zone 40	no	0	0	2,500	5,000	7,500	8,900
Zone 40 Subtotal		48,320	58,000	64,400	79,400	103,700	109,500
Wholesaler – (City of Sacramento) to Serve Zone 50	yes	0	779	3,064	5,198	5,198	5,198
Supplier-produced groundwater to serve areas outside of Zone 40	no	6,000	6,000	6,000	6,000	6,000	6,000
Total		54,320	64,779	73,464	90,598	114,898	120,698

¹Source: SCWA 2010 Urban Water Management Plan (22).

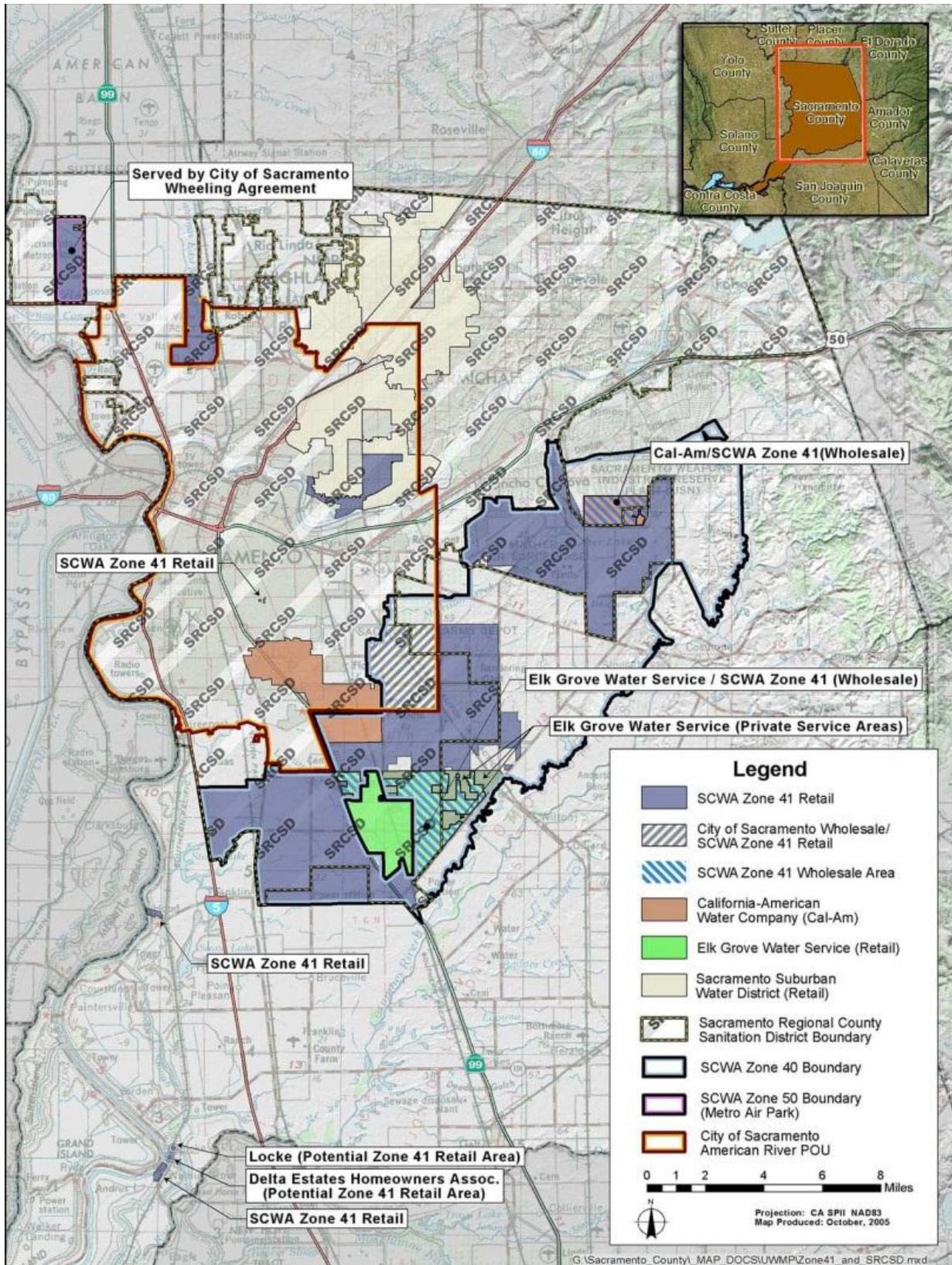


Figure 26. SCWA Zone 40 (21)

4.3.5 Summary of Wholesale Supplies

The following tables provide a summary of California American Water’s wholesale supplies for the Sacramento District.

Table 27. Sacramento District Wholesale Supplies- Existing and Planned, afy (DWR Table 17)

Wholesale Sources	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.

Table 28. Wholesale Supplies by California American Water Service Area, afy

Supply Source	2010	2015	2020	2025	2030
Antelope					
Sacramento Suburban Water District Water ¹	1,061	1,200	1,200	1,200	1,200
Arden					
City of Sacramento Water ²	0	725	773	580	483
Lincoln Oaks					
Sacramento Suburban Water District Water ¹	515	800	800	800	800
Parkway					
City of Sacramento Water ²	1,069	2,416	2,029	2,126	2,174
Security Park					
Sacramento County Water Agency ³	0	107	1,039	2,605	3,178
Suburban Rosemont					
City of Sacramento Water ²	0	1,691	2,029	2,126	2,174
West Placer					
Placer County Water Agency ⁴	858	1,562	2,027	2,740	3,704
Total	3,503	8,500	9,897	12,176	13,713
¹ The SSWD supply is assumed to be distributed as follows based on CAW Staff guidance: 60% to Antelope, 40% to Lincoln Oaks.					
² The City of Sacramento supply of 4,831 afy is distributed between Arden, Parkway, and Suburban Rosemont based on California American Water Staff guidance.					
³ It is assumed that by 2015, 100% of demand in Security Park will be met by SCWA supply.					
⁴ The PCWA supply is assumed to be 100% of the demand.					

4.4 TRANSFER OPPORTUNITIES

There are no immediate or long-term transfer and exchange opportunities that can be quantified currently. California American Water may consider transfers and exchanges in the future to implement conjunctive use and groundwater banking per the goals of the Water Forum and WAF.

4.5 DESALINATED WATER OPPORTUNITIES

California American Water does not plan on receiving water from desalinated sources within the timeline of this plan.

4.6 RECYCLED WATER OPPORTUNITIES

California America Water does not own or operate wastewater collection or treatment facilities or recycled water distribution facilities. California American Water does not have any plans to collect or treat wastewater, or deliver recycled water, in its service areas within the timeline of this plan.

4.6.1 Wastewater System Description

Wastewater generated within California American Water's Sacramento District is conveyed to and treated by the Sacramento Regional County Sanitation District (SRCSD), the City of Isleton, and the City of Roseville.

With the exception of the Isleton and the West Placer service areas, all wastewater generated within the remaining California American Water service areas is conveyed and treated by SRCSD. SRCSD operates and maintains local sewer collection facilities in the urbanized, unincorporated portions of the County. The County Sanitation District 1 (CSD-1) operates the major sewer trunk lines and pump stations necessary to convey sewage to the Sacramento Regional Wastewater Treatment Plant (SRWWTP) also owned and operated by SRCSD. The SRWWTP provides secondary treatment consisting of mechanical screening, aerated grit removal, primary settling, activated sludge aeration with pure oxygen, and secondary clarification followed by disinfection. Treated wastewater is discharged into the Sacramento River. A small portion of wastewater is treated to recycled water standards, but is not used within California American Water's service areas. Section 4.6.2 discusses SRCSD's recycled water program in more detail. The wastewater treatment plant is located in southern Sacramento County, in Elk Grove. California American Water does not receive any recycled water from SRCSD and does not anticipate receiving recycled water from SRCSD within the timeline of this UWMP.

The City of Isleton owns and operates a small wastewater treatment plant for sewer service within the city limits. Secondary treatment is provided by a combination of mechanical aeration and clarification. Treated water is disposed of through percolation ponds at the treatment plant. No recycled water is produced.

Sewered properties within the West Placer service area are served by the City of Roseville. The City of Roseville operates the Dry Creek Wastewater Treatment Plant (DCWWTP), an advanced wastewater treatment plant adjacent to the West Placer service area. The plant discharges high quality effluent to Dry Creek, which passes through the West Placer service area. Dry Creek supports a native salmon run and a varied and valuable riparian corridor. A portion of the treated water is recycled for irrigation uses and some recycled water is projected to be used for industrial purposes. The City of Roseville supplies recycled water to some customers within California American Water's West Placer service area.

Table 29 shows the amount of estimated wastewater generated within California American Water's service areas, and collected and treated by SRCSD, the City of Isleton, and the City of Roseville.

Table 29. Sacramento District Recycled Water- Wastewater Collection and Treatment, afy (DWR Table 21)

Type of Wastewater ¹	2005	2010	2015	2020	2025	2030
Sacramento Regional County Sanitation District						
Wastewater generated within the Sacramento District	29,833	30,252	31,342	33,345	36,059	38,157
Volume that meets recycled water standard ²	0	0	0	0	0	0
City of Isleton						
Wastewater generated within the Sacramento District	125	123	141	160	166	171
Volume that meets recycled water standard	0	0	0	0	0	0
City of Roseville						
Wastewater generated within the Sacramento District	534	760	1,391	1,528	2,066	2,793
Volume that meets recycled water standard	534	760	1,391	1,528	2,066	2,793
Sacramento District Total						
Total Wastewater generated within the Sacramento District	30,491	31,135	32,874	35,033	38,291	41,122
Total Volume that meets recycled water standard	534	760	1,391	1,528	2,066	2,793
¹ The wastewater calculations were based on the population for each service area multiplied by a wastewater flow factor of 138 gallons per capita per day identified in the Sacramento Regional Wastewater Treatment Plant 2020 Master Plan (23).						
² Considering California American Water only contributes 316 afy to the SRWWTP and only 5mgd of 150mgd (3.3%) of SRCSD’s treated water is used for recycled purposes on average (24), it is assumed for the purposes of this UWMP that none of California American Water’s wastewater is treated to recycled water standards at the SRWWTP.						

4.6.2 Recycled Water Supply and Uses

SRCSO currently operates a 5 million gallon per day recycling program that services the South Sacramento County areas of Elk Grove and Laguna. The recycled water program is used to irrigate street medians, commercial landscaping, parks, and school sites in Laguna West, Lakeside, and Stone Lakes developments all located in Elk Grove. SRCSO has conducted feasibility studies to expand its recycled water facilities. All of the projects identified for near future implementation are located within Elk Grove. California American Water service areas are unlikely candidates to receive recycled water in the near future because of their distance from the treatment plant. Currently, the only project recommended to increase the capacity of the reclamation facility will only distribute water within close proximity of the facility. Considering California American Water only contributes 316 afy to the SRWWTP and only 5mgd of 150mgd (3.3%) of SRCSO’s treated water is used for recycled purposes on average (24), it is assumed for the purposes of this UWMP that none of California American Water’s wastewater is treated to recycled water standards at the SRWWTP.

West Placer wastewater that is treated at Roseville’s DCWWTP goes through tertiary treatment and meets Title 22 recycled water standards. The majority of the effluent is discharged into Dry Creek. Some of the effluent is used for various applications shown in Table 32.

Table 30 shows the volumes by method of disposal for all of the Sacramento District’s treated wastewater.

Table 30. Disposal of Wastewater, afy (non-recycled)

Method of Disposal ¹	Treatment Level	2010	2015	2020	2025	2030
City of Roseville						
Creek discharge	Tertiary w/ disinfection	760	1,391	1,528	2,066	2,793
City of Isleton						
Percolation	Secondary Effluent	123	141	160	166	171
Sacramento Regional County Sanitation District						
River Discharge	Secondary Effluent	30,252	31,342	33,345	36,059	38,157
Total		31,135	32,874	35,033	38,291	41,122

¹ The wastewater calculations were based on the population for each service area multiplied by a wastewater flow factor of 138 gallons per capita per day identified in the Sacramento Regional Wastewater Treatment Plant 2020 Master Plan (23).

4.6.3 Recycled Water Use Optimization

Since it is not economically feasible to use recycled water in any of California American Water’s Sacramento District service areas except West Placer, California American Water does not employ any methods to encourage recycled water use nor has it developed a recycled water optimization plan.

Table 31 shows the projected potential recycled water for 2010 as projected in the 2005 UWMP as well as the actual recycled water use in 2010. Table 32 shows the projected potential recycled water use for the Sacramento District. All potential recycled water uses are estimates of how much of California American Water’s wastewater will be treated to recycled water standards, however California American Water does not distribute the recycled water to its customers. The City of Roseville delivers some recycled water to customers within California American Water’s West Placer service area and discharges the rest into Dry Creek, which also goes through the West Placer service area.

Table 31. 2005 UWMP Recycled Water Use Projected for 2010 and Actual 2010 Recycled Water Use, afy

Use Type	2010 Actual Use	2005 Projection for 2010
Agricultural irrigation	0	0
Landscape irrigation	116	204
Commercial irrigation	0	0
Golf course irrigation	0	0
Wildlife habitat	120	210
Wetlands	0	0
Industrial reuse	97	0
Groundwater recharge	426	320
Seawater barrier	0	0
Geothermal/Energy	0	0
Indirect potable reuse	0	0
Total	760	734

Table 32. Projected Future Recycled Water Use in Service Area, afy

User type	Description	2015	2020	2025	2030
Agricultural irrigation	Potential	0	0	0	0
Landscape irrigation	Potential	268	338	499	719
Commercial irrigation	Potential	0	0	0	0
Golf course irrigation	Potential	0	0	0	0
Wildlife habitat	Potential	181	169	199	238
Wetlands	Potential	0	0	0	0
Industrial reuse	Potential	147	137	161	193
Groundwater recharge	Potential	795	885	1,207	1,643
Seawater barrier	Potential	0	0	0	0
Geothermal/Energy	Potential	0	0	0	0
Indirect potable reuse	Potential	0	0	0	0
Total		1,391	1,529	2,066	2,793

¹ It is assumed that all potential recycled water would be treated at the DCWWTP. The breakdown of potential recycled water use by user type is portioned based on Table 5-2 of the City of Roseville 2005 UWMP (25).

4.7 FUTURE WATER PROJECTS

California American Water develops capital improvement projects as a part of the Comprehensive Planning Studies (CPSs) which are periodically prepared for each service area. CPSs are typically prepared on a five to eight year cycle with interim updates prepared as conditions change or the need arises. Each service area is evaluated for specific needs from which a prioritized list of projects is developed. The following projects were identified in their respective CPS and are currently being developed or have plans for implementation.

4.7.1 Suburban- Rosemont Service Area – Folsom Blvd. Main Extension

This project will connect the City of Sacramento's distribution system with California American Water's Suburban Rosemont system to deliver wholesale purchased water from the City to California American Water. California American Water has already constructed a portion of the necessary infrastructure, including a 24-inch diameter pipeline extending from several connection points along the western border of Suburban Rosemont to the site of a proposed booster pumping station. Construction of the booster pumping station and the City's portion of the connection pipeline are expected to be completed by the end of 2012. Once the overall project is completed, California American Water will be able to take delivery of wholesale water from the City into the Suburban Rosemont system as described previously. This new source of supply will help to resolve several current and potential water supply problems in Suburban Rosemont, while allowing conjunctive use of surface and groundwater resources. The reliability of the water proposed to be delivered by this project is described in section 5.1.1.4. Table 33 shows the projected supply reliability for the Suburban Rosemont Service Area- Folsom Blvd. Main Extension.

4.7.2 Arden Intertie

California American Water has a wholesale water supply agreement with the City that allows water to be taken into the Arden, Parkway, and Suburban Rosemont service areas. California American is planning to construct an intertie and pump station to take water from the City into Arden. The project is expected to be completed by the end of 2012. This new source of supply will help to resolve several current and potential water supply problems in Arden, while allowing conjunctive use of surface and groundwater resources. The reliability of the water proposed to be delivered by this project is described in section 5.1.1.4.

4.7.3 Intertie with Sacramento County Water Agency

California American Water and SCWA are currently developing a wholesale water supply contract and California American Water plans to construct an intertie to take water from SCWA to serve the Security Park service area. SCWA has agreed to provide replacement water to California American Water for the loss of groundwater sources affected by contamination of the former Aerojet industrial facilities (26). SCWA has plans to expand its Vineyard Water Treatment Plant from 85mgd to 100 mgd to provide additional supply for customers in east Sacramento County whose existing groundwater supplies have been affected by the Aerojet contamination plume. The Zone 41 UWMP identifies California American Water's demand as 5,000 afy from 2010 through 2030. It is assumed that SCWA will provide 100% of the supply for Security Park by 2015.

Table 33. Sacramento District Future Water Supply Projects (DWR Table 26)

Project Name	Projected Start Date	Projected Completion Date	Average-year AF to agency (afy)	Single-dry year yield (afy)	Multiple-Dry-Year 1 (afy)	Multiple-Dry-Year 2 (afy)	Multiple-Dry-Year 3 (afy)
Rosemont Conjunctive Use Pipeline ¹	In-progress	12/31/2012	1,691	1,083	1,134	1,160	1,160
Arden Intertie ¹	In-progress	12/31/2012	725	773	580	483	483
SCWA Supply ²	In-progress	12/31/2014	107	28.45	82.34	51.53	46.92
Total			2,416	1,856	1,714	1,643	1,643
<p>¹ Assumes that 4,831 afy will be available during average years to be distributed between Arden, Parkway, and Suburban Rosemont. During dry years it is assumed 2,578 afy will be divided between the three service areas. The City of Sacramento supply is distributed between Arden, Parkway, and Suburban Rosemont based on California American Water Staff guidance.</p>							
<p>² It is assumed that by 2015 100% of demand in Security Park will be met by water purchased from SCWA. Therefore, the volume of water shown for an average year is representative of the demand projected in Security Park for 2015.</p>							

5 WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

5.1 WATER SUPPLY RELIABILITY

Historically, California American Water has been able to supply 100% of its demand through groundwater production in conjunction with wholesale purchases, and it is assumed that supply reliability of groundwater will equal 100% for the timeline of this plan. California American Water is participating in conjunctive use with SSWD and the City to offset groundwater production with purchased surface water. The surface water supply from the City is a firm, fixed source.

Table 34 shows some other factors affecting the supply reliability of the Sacramento District. The Central Basin has water quality issues in the Suburban Rosemont service area as described in section 5.3.8. Both the City and SSWD wholesale supplies are subject to legal, environmental, and climatic factors. The main contributors to these factors are requirements for flows in the Sacramento and American Rivers

Table 35 shows the supply reliability base years for all supply sources of the Sacramento District. Table 36 shows supply availability during historical multiple dry years (Table 35) as percentages of supply available during normal years as shown in Table 35.

Table 34. Sacramento District Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Central Basin			X	
City of Sacramento	X	X		X
North Area Basin	X		X	
Placer County Water Agency	X	X	X	X
Sacramento County Water Agency	X	X		X
Sacramento Suburban Water District	X	X		X
Solano Subbasin			X	

Table 35. Sacramento District Supply Reliability Base Years

Supply Reliability	Average Water Year	Single Dry	Multiple Dry Years
Antelope			
North Area Basin ¹	2009	1976	1975-1977
Sacramento Suburban Water District Water ²	1999	1976	1986-1989
Arden			
Central Basin ¹	2009	1976	1975-1977
City of Sacramento Water ³	2005	1977	1990-1992
Isleton			
Solano Subbasin ¹	2009	1976	1975-1977
Lincoln Oaks			
North Area Basin ¹	2009	1976	1975-1977
Sacramento Suburban Water District Water ²	1999	1976	1986-1989
Parkway			
Central Basin ¹	2009	1976	1975-1977
City of Sacramento Water ³	2005	1977	1990-1992
Security Park			
Central Basin ¹	2009	1976	1975-1977
Sacramento County Water Agency ⁴	1993	1977	1989-1992
Suburban Rosemont			
Central Basin ¹	2009	1976	1975-1977
City of Sacramento Water ³	2005	1977	1990-1992

Supply Reliability	Average Water Year	Single Dry	Multiple Dry Years
Walnut Grove			
Solano Subbasin ¹	2009	1976	1975-1977
West Placer			
Placer County Water Agency ⁵	N/A	1976	1975-1977
¹ Hydrologic data from the Western Regional Climate Center, Station:(047633) Sacramento 5 ESE 1877-2009, was analyzed to establish normal and dry years. Source: (21)			
² Source: Sacramento Suburban Water District 2010 UWMP (18)			
³ Source: City of Sacramento 2010 UWMP (14)			
⁴ Source: SCWA 2010 UWMP (22)			
⁵ Source: Placer County Water Agency Integrated Water Resources Plan (13)			

Table 36. Sacramento District Supply Reliability- Current Water Uses (DWR Table 31)

Water Supply Sources ¹	Average / Normal Water Year Supply	Single Dry Water Year	Multiple Dry Water Year Supply		
			Year 1	Year 2	Year 3
Central Basin	100%	100%	100%	100%	100%
City of Sacramento ¹	100%	100%	100%	100%	100%
North Area Basin	100%	100%	100%	100%	100%
Placer County Water Agency ²	100%	75%	84%	84%	84%
Sacramento County Water Agency ³	100%	27%	77%	48%	44%
Sacramento Suburban Water District ⁴	100%	0%	0%	0%	0%
Solano Subbasin	100%	100%	100%	100%	100%
¹ Assumes 100% of the firm capacity of 2,578 afy will be available during dry years. Source: City of Sacramento 2010 Urban Water Management Plan (14)					
² Source: Placer County Water Agency Integrated Water Resources Plan (16)					
³ Source: SCWA Draft 2010 Urban Water Management Plan (22)					
⁴ Assumes that anytime SSWD has a dry year, shoulder water will not be available to California American Water.					

5.1.1 Wholesale Supply Reliability

Table 34 shows some other factors affecting the wholesale supply reliability of the Sacramento District. Both the City and SSWD wholesale supplies are subject to legal, environmental, and climatic factors. The main contributors to these factors are requirements for flows in the Sacramento and American Rivers.

Table 35 shows the supply reliability base years for all wholesale supply sources of the Sacramento District. Table 36 shows wholesale supply availability during historical multiple dry years.

5.1.1.1 SSWD Supply Reliability

The wholesale supply agreement with SSWD is subject to water availability from the PCWA American River diversion entitlement for SSWD. The contract between PCWA and SSWD is dependent on the WFA and Hodge flow criteria. The PCWA American River diversion entitlement will be zero during dry years, resulting in SSWD not being able to deliver any water to California American Water during dry years. For the SSWD’s PCWA supply, a dry year is defined as a year in which less than 950,000 acre feet flow into Folsom Reservoir.

SSWD will receive its PCWA entitlement during years when unimpaired flows into Folsom Reservoir exceed 950,000 acre feet, for the first ten years of the agreement with PCWA (2000-2010). After 2010, the unimpaired inflow into Folsom Reservoir must be greater than 1,500,000 acre feet for SSWD to receive its PCWA supply. When minimum Hodge flow criteria in the Lower American River are met PCWA surface water will be legally constrained, so SSWD will not be able to provide water to California American Water. (19). Table 37 shows SSWD’s supply reliability.

Table 37. Sacramento Suburban Water District Water Supply , afy¹

Sources	Normal Water Year	Single Dry Water Year Supply	Multiple Dry Water Year Supply		
			Year 2011	Year 2012	Year 2013
Wholesaler - Purchase - USBR (215)	1,000	0	0	0	0
Wholesaler - Transfer - PCWA	29,000	0	0	0	0
Wholesaler - Entitlement - City of Sacramento	9,399	0	3,500	3,500	3,500
Supplier-produced groundwater	31,241	43,067	43,067	43,067	43,067
Supplier-produced surface water	0	0	0	0	0
Transfers in	0	0	0	0	0
Exchanges in	0	0	0	0	0
Recycled water	0	0	0	0	0
Desalination water	0	0	0	0	0
Total	70,640	43,067	46,567	46,567	46,567
Percent of Normal	100%	61%	66%	66%	66%

¹ Source: SSWD 2010 UWMP (18).

5.1.1.2 Placer County Water Agency Supply Reliability

It is assumed that PCWA will supply sufficient water to meet the entire demand within the West Placer service area, regardless of hydrologic condition. California American Water expects that the contract between California American Water and PCWA will be renegotiated if California American Water requires additional water. The Placer County Water Agency Integrated Regional Water Management Plan describes the reliability of its supply sources. Table 38 shows the supply reliability of PCWA.

Table 38. PCWA Water Supply, afy¹

Placer County Water Agency Supply Sources	Average Water Year	Single Dry Year	Multiple Dry Years			
			Year 1	Year 2	Year 3	Year 4
PCWA						
Middle Fork Project	120,000	120,000	120,000	120,000	120,000	120,000
Central Valley Project	35,000	26,250	26,250	26,250	26,250	26,250
PG&E	100,400	50,000	75,300	75,300	75,300	75,300
City of Lincoln	3,300	1,650	2,475	2,475	2,475	2,475
City of Roseville- Central Valley Project	32,000	24,000	24,000	24,000	24,000	24,000
South Sutter Water District	5,000	0	0	0	0	0
Total	295,700	221,900	248,025	248,025	248,025	248,025
Percent of average year supply	100%	75%	84%	84%	84%	84%

¹Source: Placer County Water Agency Integrated Water Resources Plan (16).

5.1.1.3 Sacramento County Water Agency

California American Water plans to purchase and receive water from the Sacramento County Water Agency (SCWA) as the primary source of supply for the Security Park system. SCWA identified California American Water as a wholesale customer in its 2010 Zone 41 Urban Water Management Plan (22). Figure 26 shows Security Park’s location within the Zone 40 service area. California American Water and SCWA are currently in the process of developing a wholesale water supply agreement. Further discussion of the SCWA supply is described in section 4.7.3. It is assumed by 2015 that 100% of the supply in Security Park will be provided by SCWA. Table 26 shows the projected sources of supply for SCWA.

Table 39. SCWA Water Supply, afy ¹

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
19.31	5.12	14.82	9.26	8.44	8.87
Percent of average/normal year	26.50%	76.70%	48%	43.70%	45.90%

¹ Based on million acre-feet of runoff. Source: SCWA DRAFT 2010 Urban Water Management Plan (22)

5.1.1.4 City of Sacramento Supply Reliability

The City of Sacramento wholesale supply agreement is subject to Hodge flow criteria on the Lower American River and inflow to Folsom Reservoir. The City will provide a minimum of 2.3 mgd throughout the year. During off-peak periods (October 15th through May 14th) deliveries will not exceed 5.76 mgd and a majority of water sold by the City will be surface water. During on-peak periods (May 15th through October 14th) deliveries will not exceed 2.3 mgd. If the instantaneous flow in the Lower American River is above the Hodge flow criteria, then the water sold by the City will be primarily surface water. If the instantaneous flow is below the Hodge flow criteria, then the water sold, up to 1.13 mgd, will be surface water. Water sold exceeding 1.13 mgd, up to the maximum of 2.3mgd, will be supplemented with City groundwater. The total amount of purchased water from the City will not exceed 4,831 afy. In extreme conditions when the unimpaired inflow to Folsom Reservoir is less than 400,000 afy, the City and California American Water will meet with other stakeholders to determine how the remaining water will be managed and distributed. According to the City of Sacramento UWMP, an extreme dry year of this type has only occurred in two-years throughout the 72 year hydrologic history examined (27). Those years were 1924 and 1977. For planning purposes the single dry year is 1977 because it represents the most severe limitations on supply the City of Sacramento has experienced within that timeframe. The multiple dry years consist of two Hodge flow criteria years followed by the single dry year. The only two consecutive Hodge flow criteria years were 1933 and 1934. For planning purposes the 2005 City of Sacramento UWMP defines their multiple dry years period based on 1933, 1934, and 1977 hydrologic conditions (27). Table 40 shows the City’s supply reliability.

Table 40. City of Sacramento Water Supply, afy

Water Supply Sources	Average Water Supply Year	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
Sacramento River	81,800	81,800	81,800	81,800
American River	Varies	174,500	178,000	181,500
Groundwater	20,000	20,000	20,000	22,000
Total (AFY):	Varies	276,300	279,800	283,300
Percent of Average Year:		100%	100%	100%
¹ Source: City of Sacramento Administrative Draft 2010 Urban Water Management Plan (14)				

5.1.2 Resource Maximization and Import Minimization

California American Water does not currently import any of its water supplies from outside of the Sacramento region, and it is implementing the future supply projects discussed in section 4.7.1 to achieve resource maximization and import minimization. Conjunctive use is the key to utilizing local supply sources and avoiding the import of external supply sources.

5.2 WATER SHORTAGE CONTINGENCY PLAN

5.2.1 Introduction

The UWMP Act requires a Water Shortage Contingency Plan to include stages of action, mandatory prohibitions and restrictions, consumption reduction methods, penalties for excessive use, a three-year minimum water supply estimate, and a catastrophic supply interruption plan.

5.2.2 Stages of Action, Mandatory Prohibitions and Restrictions, Consumption Reduction Methods, Penalties for Excessive Use

California American Water does not have the authority to enforce mandatory prohibitions and use restrictions without the approval of the California Public Utilities Commission (CPUC). As of May 15, 2009, California American Water's Sacramento District has received approval for implementing only voluntary water conservation measures. These measures are based on the CPUC's Rule No. 14.1 (Appendix K).

When water supplies are projected to be insufficient to meet average customer demand, and are beyond the control of California American Water, then California American Water can elect to use the stages of voluntary conservation in Section C of Rule No. 14.1 (Appendix K), after notifying the CPUC Water Division. If the water supply shortage requires more stringent prohibitions and restrictions, California American Water can request authorization from the CPUC to implement mandatory conservation and rationing measures from Section D of Rule No. 14.1 (Appendix K).

Upon filing to the CPUC for mandatory conservation, California American Water proposes the percent reduction or restriction in an advice letter. This allows California American Water to have the flexibility to request the necessary reduction percentage needed rather than going through multiple stages or processes. California American Water will work with other water purveyors in the region to implement a mandatory reduction percentage that is consistent with the region and necessary for the water supply/demand issues at the time. The CPUC approves the filing and the percent reduction, which then gives California American Water the authority to proceed in enforcing the restrictions.

In order to reach a 50 percent reduction, California American Water would file an immediate and urgent advice letter to the CPUC requesting approval to implement mandatory prohibitions and restrictions that may likely exceed the listed prohibitions and restrictions in the section of the current Rule No. 14.1 applicable to the Sacramento District (Appendix K).

California American Water's Sacramento District has not yet had to file an advice letter requesting mandatory conservation. The Rule No. 14.1 (Appendix K), applicable to the Southern Division only, outlines stages of mandatory conservation. The Southern Division section Rule No. 14.1-SD can be used as an example for potential water conservation stages, prohibitions, and restrictions for the Northern Division in the event that the Northern Division needs to file an advice letter requesting mandatory conservation up to 50%.

5.2.3 Three-year Minimum Water Supply

The minimum supply for each service area is equal to the driest three-year historic sequence in the history of California American Water's supply. For all service areas included in this UWMP, there has never been a time when demand could not be fully met with available supplies. However, the driest years on record predate the existence of California American Water in its current role and capacity as a retail water supplier (see Table 35). For all service areas, except West Placer, the three-year minimum supplies are based on the assumption that 100% of demand can be met by groundwater (and surface water, if available). The variable for each service area is the amount of demand that is met by surface water. Demand is met by the minimum supply of surface water available and the remainder is covered by groundwater production. The exception to the assumption that demand can be met by groundwater is West Placer, which receives its entire supply from PCWA. To calculate the minimum wholesale supplies available for each year, the percent of average supply available during a multiple dry year period for each wholesale supply was assumed (see Table 36). Table 41 shows the three-year minimum water supplies by service area for the Sacramento District.

Table 41. Sacramento District Three-year Minimum Water Supplies, afy

Supply Source	2011	2012	2013
Antelope			
North Area Basin	4,853	5,095	5,343
Sacramento Suburban Water District Water ¹	-	-	-
Subtotal	4,853	5,095	5,343
Arden			
North Area Basin	1,095	1,117	1,139
City of Sacramento Water ²	387	387	387
Subtotal	1,481	1,503	1,526
Isleton			
Solano Subbasin	136	144	144
Lincoln Oaks			
North Area Basin	7,758	8,121	8,484
Sacramento Suburban Water District Water ¹	-	-	-
Subtotal	7,758	8,121	8,484
Parkway			
Central Basin	8,516	8,815	9,117
City of Sacramento Water ²	1,289	1,289	1,289
Subtotal	9,805	10,104	10,406
Security Park			
Central Basin	12	10	7
Sacramento County Water Agency ⁴	-	-	-
Suburban Rosemont			
Central Basin	9,379	9,922	10,472
City of Sacramento Water ²	902	902	902
Subtotal	10,282	10,824	11,374
Walnut Grove			
Solano Subbasin	107	107	106
West Placer			
Placer County Water Agency ³	801	984	1,209
Total	35,224	36,883	38,593

¹ The SSWD supply is assumed to be distributed as follows based on CAW Staff guidance: 60% to Antelope, 40% to Lincoln Oaks.

² The firm capacity City of Sacramento supply of 2,578.3 afy is distributed between Arden, Parkway, and Suburban Rosemont based on California American Water Staff guidance.

³ The PCWA supply is assumed to be 100% of the demand.

⁴ The SCWA supply is not planned to be available until 2015.

5.2.4 Catastrophic Supply Interruption plan

This section describes the response to emergency situations which interrupt water supply including earthquakes, regional power outages, system failures and other events specific to California American Water's sources.

California American Water has analyzed the nature and extent of likely catastrophes which could affect the ability to provide water supply for both consumptive and emergency use. Catastrophes are broadly classified as "naturally occurring" and "manmade". Natural catastrophes include such incidents as fire, flood, earthquake and electrical supply failure. Manmade catastrophes include such incidents as chemical spill, vandalism and sabotage, including terrorist attack, and mechanical failure. Manmade catastrophes can also have the same end result as those of natural disasters. As an example, a dam break regardless of the cause, could flood and damage or destroy facilities.

California American Water has installed a broad range of systems, procedures, and facilities to reduce the potential of significant water supply interruptions regardless of cause. Some of these systems, procedures and facilities are summarized here:

- All production facilities are fenced and locked to prevent unauthorized entry.
- Emergency generators are located at critical facilities. The generators are equipped with automatic transfer switches which upon a power failure will automatically disconnect the facility from commercial power source, start the generator, and power up the facility. While some generators are stationary, most are trailer mounted thus allowing movement within the various service areas should that be required.
- System pressure, water production flow rate, and power status are monitored and reported at representative locations throughout the various water systems. Reports are sent to the home station at 4701 Beloit Drive where they are displayed, monitored and recorded. Additionally, approximately twenty representative water supply and production sites are equipped with "mission controllers", a web based monitoring system. The mission controllers alert both on-duty and on-call staff by cell phone when operational problems arise.
- California American Water maintains on-call staff twenty four hours a day for rapid response.
- California American Water maintains a stockpile of service line repair parts and associated construction equipment for repair of small leaks and line breaks.
- California American Water has blanket contracts with two local contractors to assist with larger emergency repairs caused by earthquake or other major event.
- California American Water has completed an Emergency Operations Plan detailing procedures and contacts and outlining responses to several most probable catastrophic events and has filed it with the Department of Public Health.
- An inherent strength in the California American Water system is the fact that water is produced from multiple wells spread more or less uniformly throughout the various service areas. As a result the system has a high degree of redundancy.
- California American Water systems in Sacramento have emergency interties with other adjacent water purveyors thus allowing mutual aid.

5.2.5 Revenue and Expenditure Analysis

California American Water develops a proposed rate structure and submits it to the CPUC for review and approval. These filings are usually made on a three-year cycle. To assist in rate stabilization and provide for reductions in revenue during periods of reduced sales, including mandatory reductions during drought, California American Water has requested a Water Revenue Accounting Mechanism (WRAM) in the last General Rate Case. WRAM is the mechanism through which sales are decoupled from revenues, so that conservation is encouraged without having a negative financial impact. Currently, all of California American Water’s districts, except Sacramento, have received CPUC approval for and have set up the WRAM. It is anticipated that California American Water will request approval of the WRAM for the Sacramento District in the next GRC.

WRAM tracks the differences between total quantity charge revenues authorized by CPUC (“Total Actual Quantity Revenues”) and the actual variable costs for purchased power, purchased water, and pump taxes. The revenue requirements are the same under conservation rates as they are under the current rate structure. Implementation of a surcharge/surcredit is done considering the net balance of the WRAM account through a cost balancing account. The WRAM will provide a cost accounting means to stabilize rates while protecting against revenue shortfalls.

5.2.6 Mechanisms for Determining Actual Reductions

California American Water is currently in the process of retrofitting all of its accounts with meters. All accounts are scheduled to be metered by 2014. California American Water’s supply sources are metered and records of groundwater produced and surface water purchased are maintained regularly. During a water shortage a comparison of use records would be carried out to determine if water is being conserved.

5.2.7 Supply and Demand Comparison

Table 42 shows a supply and demand comparison during a normal year scenario. Table 43 shows a supply and demand comparison during a single dry year scenario. Table 44 shows a supply and demand comparison during a multiple dry years scenario.

Table 42. Supply and Demand Comparison- Normal Year, afy (DWR Table 32)

	2015	2020	2025	2030
Supply totals	46,488	44,029	48,267	51,922
Demand totals	46,488	44,029	48,267	51,922
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 43. Supply and Demand Comparison- Single Dry Year, afy (DWR Table 33)

	2015	2020	2025	2030
Supply totals	46,488	44,029	48,267	51,922
Demand totals	46,488	44,029	48,267	51,922
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 44. Supply and Demand Comparison- Multiple Dry-Year Events, afy (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	46,488	44,029	48,267	51,922
	Demand totals	46,488	44,029	48,267	51,922
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	46,488	44,029	48,267	51,922
	Demand totals	46,488	44,029	48,267	51,922
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	46,488	44,029	48,267	51,922
	Demand totals	46,488	44,029	48,267	51,922
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

5.2.8 Draft Ordinance

California American Water does not have authority to adopt resolutions or ordinances as a public utility company. However, California American Water can support local jurisdictions in developing ordinances or resolutions within the Sacramento District's service areas that would be compatible with California American Water's Water Shortage Contingency Plan. For all intents and purposes of this UWMP, the Rule No. 14.1 filed with the CPUC (see Appendix K) serves as the Water Shortage Contingency Plan resolution and anticipated course of action to achieve all necessary requirements of the Water Shortage Contingency Plan if needed.

5.3 WATER QUALITY

5.3.1 Background

California American Water delivers water to their Northern Division customers that surpass state and federal drinking standards. Ten of the eleven water systems that comprise the Northern Division are supported by groundwater from a network of over 100 wells that are located throughout each system. Since 1997, California American Water has negotiated contracts with neighboring water purveyors that supplement three of 10 (groundwater) systems with surface water. California American Water continues this effort and expects to have similar contracts in place for three additional systems within the next five years. High quality supplemental surface water provided to California American Water's customers originates from either the American River/Folsom Lake or the Sacramento River. California American Water's West Placer system is supported by purchased surface water that originates from Folsom Lake.

Customers in all 10 groundwater systems occasionally express concerns about water hardness. Water hardness or "hard water" has no regulatory standard. The absence of a regulatory standard limits California American Water's ability to address the issue. Naturally occurring and/or human-induced groundwater contamination has impacted or threatens sources in all 10 groundwater systems. A summary of those contaminants, by system, and California American Water's responsive actions are discussed below.

5.3.2 Antelope

The network of wells supporting the Antelope system produces high quality groundwater. Two of the system's 18 wells have been impacted by manganese. The secondary standard set by the State for manganese (@ 50 µg/L) is based on the aesthetic effects (colored water) of the element. California American Water mechanically mitigated elevated levels of manganese in one of the wells and is trying to repeat the effort in the other. As a result of the Water Forum Agreement signed by area water purveyors to better manage groundwater and surface supplies, the Antelope system periodically receives supplemental surface water.

5.3.3 Arden

The network of five wells that support the Arden system produce high quality groundwater. One of the system's 5 wells has been impacted by manganese. California American Water was able to mechanically mitigate the elevated levels of manganese in the well with only a minor decrease in production.

5.3.4 Isleton

The Isleton system is supported by two active wells and one standby well. System demand is met by operating one of two active wells located at the 5th Street Treatment Plant. The treatment plant reduces raw water arsenic (20 µg/L to 30 µg/L) to levels less than the 10 µg/L maximum contaminant level (MCL) and reduces levels of manganese to less than 10 µg/L. The standby well is designed to operate only when the treatment plant fails or during emergencies when increased demand significantly impacts system pressure (i.e. fire flows).

5.3.5 Lincoln Oaks

Eleven of the Lincoln Oaks system's 26 wells have had confirmed detections of organic chemical contaminants since monitoring began in 1989. Two different groups of organic chemicals have been detected in the Lincoln Oaks system wells, they include: volatile organic chemicals (VOCs) and a synthetic organic chemical (SOC). The VOCs detected are tetrachloroethylene (PCE) and trichloroethylene (TCE), the SOC detected is ethylene dibromide (EDB). As a result of the Water Forum Agreement signed by area water purveyors to better manage groundwater and surface supplies, the Lincoln Oaks system periodically receives supplemental surface water.

The VOC tetrachloroethylene has been confirmed in samples collected from nine different Lincoln Oaks system wells. The wells are generally located in the northern and eastern portions of the Lincoln Oaks system. Concentrations of PCE detected usually range from 0.5 µg/L to 13 µg/L and are typically highest in the wells located in the northeastern part of the system. To date, samples from four wells have exceeded the State regulatory limit (or MCL) of 5 µg/L. California American Water had granular activated carbon (GAC) treatment plants installed at three wells sites before raw water concentrations of PCE exceeded the MCL.

The VOC trichloroethylene has been confirmed in samples collected from one well. Historic records suggest that TCE was first detected in the late 1980s. Since that time, TCE concentrations have ranged from < 0.5 µg/L (not detected) to 1.4 µg/L. The State regulatory limit for TCE is 5 µg/L.

The SOC ethylene dibromide has also been detected in one well. EDB was first detected during routine triennial SOC monitoring in 2001. Since that time until early 2007, concentrations of EDB ranged from 0.02 µg/L to 0.05 µg/L. Following mechanical mitigation of the well casing and grout seal, EDB concentrations have ranged from < 0.01 µg/L (not detected) to 0.03 µg/L. The State regulatory limit for EDB is 0.05 µg/L.

Increased (quarterly) monitoring requirements are in effect for 12 Lincoln Oaks system wells and increased (annual) monitoring requirements pertain to the remaining 13 wells. California American Water has requested funding approval to perform a groundwater study intended to assess the characteristics of the PCE plume(s) that have impacted the nine wells. Having the nature and extent of the plumes defined would allow California American Water to better evaluate the extent to which a well will be impacted and treatment options. It will also provide insight to the feasibility of mechanical mitigation, pump cycling (avoidance) and well destruction.

5.3.6 Parkway

The Parkway system is supported by a network of 20 wells and one purchased (surface) water intertie. Ten of the wells located in the southern portion of the system pump water directly to one of three treatment plants that remove levels of manganese typically ranging from 80 µg/L to 180 µg/L. Samples from an additional treatment plant well show arsenic levels that range from 12 µg/L to 19 µg/L and levels of manganese that range from 180 µg/L to 240 µg/L. Compliance with the arsenic standard for this well is achieved through blending with other wells that support that treatment plant.

Acute PCE contamination (up to 79 µg/L) in a treatment plant well located in the southern part of the system resulted in the destruction of that source in 2005. Samples from two wells located in the northern portion of the system have shown levels of PCE ranging from less than 0.5 µg/L up to 7.9 µg/L and 13 µg/L, respectively. Samples from both wells have also historically shown levels of nitrate over 30 mg/L. While levels of PCE and nitrate appear to increase significantly with pumping at both sources, samples from one of the wells (PCE up to 7.9 µg/L) routinely shows low levels of perchlorate (up to 3.6 µg/L). The MCL for perchlorate is 6 µg/L. In order to maintain the supply from one of the PCE-impacted sources, California American Water had a granular activated carbon (GAC) treatment plant installed at the source with the highest historic level of PCE.

Treated water concentrations of PCE are generally less than 0.5 µg/L while treated water levels of manganese are typically less than 10 µg/L.

5.3.7 Security Park

The Security Park system is supported by one groundwater well. The businesses this system supplies are located in the Administration Area of the Inactive Rancho Cordova Test Site (IRCTS). From 1956 until 1969, the McDonnell Douglas Corporation tested and cleaned rocket motors in the IRCTS area that were used in the aerospace industry. Following the 1988 discovery of TCE in an adjacent water purveyor's well to the west, McDonnell Douglas and then current owner of the property, AeroJet, were ordered to investigate and remediate soil and groundwater contamination.

While no known groundwater contaminants associated with the former activities at the IRCTS have been detected at reportable concentrations in the system's only well, it is considered threatened. Known groundwater contaminants detected in the area include: PCE, TCE, CCl₄, cis-1,2-DCE, Freon 113, methylene chloride and perchlorate (ClO₄).

Long-term plans for this area show it transitioning from light industrial businesses to residential dwellings. Those plans also include supplying those dwelling exclusively with surface water as described previously.

5.3.8 Suburban Rosemont

The Suburban Rosemont service area is actually two separately permitted systems, but for the purposes of this UWMP is treated as one service area. The following descriptions of water quality issues in the Suburban Rosemont service area are separated into the Rosemont system and the Suburban system.

The Rosemont system is supported by a network of nine wells. Samples from three of the wells show nitrate over 30 mg/L. The MCL for nitrate is 45 mg/L. Samples from one of three wells have had historic high nitrate detections in the 50 mg/L to 60 mg/L range. In an effort to significantly reduce groundwater with elevated concentrations of nitrate from entering the well, an extensive mechanical mitigation effort was performed inside and outside the well casing. One source in the southern part of the system pumps raw water to a treatment plant where levels of manganese ranging from 100 to 120 µg/L are reduced to less than 10 µg/L. The treatment plant also removes naturally-occurring methane present in the groundwater.

While no known groundwater contamination associated with the former Mather Air Force Base has impacted Rosemont system wells at reportable concentrations, all are considered threatened. Known contaminants detected in the groundwater at other nearby wells include: tetrachloroethylene, trichloroethylene, carbon tetrachloride (CCl₄), cis-1,2-dichloroethylene (cis-1,2-DCE), 1,1-dichloroethane (1,1-DCA), n-butylbenzene and 1,2,4-trichlorobenzene (1,2,4-TCB). Increased monitoring requirements (quarterly VOCs) will allow California American Water to identify and respond to any impact as soon as it is detected.

The Suburban system is supported by a network of 19 wells. The system has been impacted by groundwater contaminants from AeroJet's Operable Unit 3 to the east and northeast and the former Mather Air Force Base to the east and southeast. Over the past 20 years, two of California American Water's wells had to be removed from service due to sample results showing the presence of either CCl₄ or ClO₄ in excess of their respective (CCl₄= 0.5 µg/L and ClO₄= 6 µg/L) MCLs. Based on trace-level sample results from selected Suburban system wells reported by either AeroJet or Mather AFB, several other wells show periodic detections of either: CCl₄, 1,1-DCE, PCE, TCE or ClO₄. Current remedial efforts in both areas appear to have slowed or in some cases, contained the movement of groundwater contaminants. Other contaminants detected in Suburban system wells include dibromochloropropane (DBCP) in three wells and nitrate over ½ the MCL in two wells. Since DBCP was first detected in March 2001, concentrations have ranged from < 0.01 µg/L to 0.19 µg/L. The MCL for DBCP is 0.2 µg/L. Low levels (@ 0.6 µg/L) of 1,1-DCE have also been detected in samples from one well. The MCL for 1,1-DCE is 6 µg/L.

California American Water is preparing the regulatory paperwork required to consolidate the Rosemont and Suburban systems. In addition, a main is being constructed to bring surface water supplies into the combined system. System consolidation and the addition of surface water supplies will reduce California American Water's dependence on groundwater and allow California American Water to participate in regional efforts to more effectively manage the water supply.

5.3.9 Walnut Grove

The Walnut Grove system is supported by one active well and one standby well. System demand is met by operating the active well located at the Islandview Treatment Plant. The treatment plant reduces raw water arsenic (9 µg/L to 11 µg/L) to levels less than the 10 µg/L maximum contaminant level (MCL) and reduces (sub-MCL) levels of manganese to less than 10 µg/L.

5.3.10 West Placer

The West Placer system is supported exclusively by high quality (purchased) surface water that comes from Folsom Lake. Total Trihalomethanes typically range from 40 µg/L to 60 µg/L. Haloacetic acids typically range from 15 µg/L to 35 µg/L. Supporting the system through two interties over the past few years seems to have reduced disinfection by-product formation and pressure variations. The West Placer system has an emergency intertie with the Antelope system that helps ensure the reliability of the system.

6 DEMAND MANAGEMENT MEASURES

The UWMP Act requires a discussion of Demand Management Measures (DMMs), including a description of each of the DMMs currently being implemented or scheduled for implementation through 2015, the schedule of implementation for all DMMs, and the methods, if any, the Sacramento District will use to evaluate the effectiveness of DMMs. If a DMM is not being implemented or scheduled for implementation, the UWMP must include an evaluation of economic and noneconomic factors such as environmental, social, health, customer impact, and technological factors; a cost-benefit analysis; a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; and a description of the legal authority of the water supplier to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

The UWMP Act identifies 14 DMMs. These 14 DMMs correspond to the 14 Best Management Practices (BMPs) listed and described in the California Urban Water Conservation Council Memorandum of Understanding (CUWCC MOU). These 14 DMMs also correspond to the DMMs identified in DMM Implementation Compliance (AB 1420). The BMPs and DMMs are examples of sound water management practices that have been found to be cost effective and practicable in most instances throughout California. DWR consulted with CUWCC and determined that DMMs will be equated with BMPs. Therefore, DMMs and BMPs are referred to interchangeably in this Plan. Table 45 shows which DMMs and BMPs correspond with each other.

The UWMP Act allows CUWCC members to submit their 2009-2010 approved CUWCC BMP report with their UWMPs in lieu of a DMM section if the water supplier is in full compliance with the CUWCC MOU. The Sacramento District is a CUWCC member and is in full compliance with the CUWCC MOU. A copy of the Sacramento District's 2009-2010 CUWCC BMP report is included in Appendix N to provide a framework for future UWMPs and BMP implementation, and this UWMP includes a DMM section to support the BMP report.

Table 45. DMMs and BMPs

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 multifamily residential customers ¹
				B	Residential plumbing retrofit
		3.2	Landscape water survey	A	Water survey programs for single-family residential and multifamily 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
	¹ Components of DMM A (Water survey programs for single-family residential and multifamily residential customers) apply to both BMP 3.1 (Residential assistance program) and BMP 3.2 (Landscape water survey)				

6.1 EVALUATION OF BMP EFFECTIVENESS

The effectiveness of each BMP has an impact on the overall effectiveness of the BMPs. Some BMPs can be quantitatively evaluated independent of the other BMPs; for those BMPs, specific evaluation methodologies are presented for the BMP in the appropriate subsection of Section 6.2.

The method used to evaluate the effectiveness of the BMPs as a whole is the calculation of the overall per capita water use (gpcd) reduction from the baseline per capita water use. As shown in Appendix J, the Sacramento District's 2010 actual water use was 165 gpcd, which reflects a reduction in per capita water use of approximately 24% from the baseline, and is less than the 2020 target water use of 173 gpcd. California American Water believes that these significant reductions make additional savings less likely and therefore does not anticipate further reductions in per capita water use beyond the 2020 target through the horizon of this plan.

Future effectiveness will continue to be measured by calculating reduction from the baseline per capita water use per the requirements of SB7 as described in Appendix J.

6.2 BMPS IMPLEMENTED OR PLANNED TO BE IMPLEMENTED

6.2.1 BMP 1.1.1 CONSERVATION COORDINATOR (DMM L)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Designate a person as the agency's responsible conservation coordinator for program management, tracking, planning, and reporting on BMP implementation (28).

In 2005, California American Water created and staffed a statewide Water Conservation Coordinator position, now called the Manager of Conservation and Efficiencies. This position is responsible for managing the water conservation activities for all of the California American Water's districts. These responsibilities include preparing and tracking water conservation budgets, overseeing data collection, BMP fulfillment reporting, and communicating with senior management regarding water conservation issues and related water conservation activities.

The Manager is supported by conservation staff in each district, as shown in Table 46. In the Sacramento District, there is one full-time position, the Operations Specialist, which is devoted 100% to conservation efforts and a second full-time position, Supervisor/Conservation and Administration Support, which is devoted 50% to conservation efforts. In addition, there are two part-time conservation positions, which are described in greater detail below.

Table 46. California American Water Conservation Team

Conservation Staff	Number of Full-Time Positions	Number of Part-Time Positions
Statewide	1	0
Sacramento District	1.5	2
Larkfield District	0	1
Monterey County District	2.5	1
Ventura County District	0	1
Los Angeles County District	0	1
San Diego County District	0	1
All Southern Division (Los Angeles, Ventura and San Diego County Districts)	1	0
Total	6	7

In 2010, the Sacramento District funded two part-time conservation staff positions (29). The Sacramento District’s part-time conservation staff helped to administer the Conservation Program by tracking equipment inventory, performing conservation patrols, conducting research, responding to customer questions, and reaching out to customers to publicize conservation programs. The part-time conservation positions were funded out of the conservation surcharge one-way balancing account.

In addition, the Manager of Conservation and Efficiencies and the Sacramento District’s conservation staff work closely with and receive assistance from other Sacramento District staff. The central call center and local district customer service staff are the primary responders for distributing water conserving devices and processing rebate applications. Operations personnel assist with collecting production and sales data, water loss reduction efforts, staffing local events, and coordinating with staff from cooperating agencies.

California American Water plans to continue implementing this BMP, but does not anticipate hiring any additional dedicated water conservation staff. Table 48 shows the planned conservation staff positions through 2015.

The method used to evaluate the effectiveness of the BMPs as a whole, and this BMP in particular, is the calculation of the overall per capita water use (gpcd) reduction from the baseline per capita water use. As shown in Appendix J, the Sacramento District’s 2010 actual water use was 165 gpcd, which reflects a reduction in per capita water use of 24% since the statewide Conservation Coordinator was hired in 2005. The Sacramento District’s 2010 actual water use of 165 gpcd is also less than the 2020 target water use of 173 gpcd. California American Water believes that these significant reductions make additional savings less likely and therefore does not anticipate further reductions in per capita water use beyond the 2020 target through the horizon of this plan.

Table 47. Actual Conservation Staff

Actual	2006	2007	2008	2009	2010
Number of full-time positions ¹	1	1	1	1	2.5
Number of part-time positions	-	1	-	-	2

¹ Includes the statewide Manager of Conservation and Efficiencies.

Table 48. Planned Conservation Staff

Planned	2011	2012	2013	2014
Number of full-time positions ¹	2.5	2.5	2.5	2.5
Number of part-time positions	2	2	2	2

¹ Includes the statewide Manager of Conservation and Efficiencies.

6.2.2 BMP 1.1.2 WATER WASTE PREVENTION (DMM M)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

a) New development

Enact, enforce, or support legislation, regulations, ordinances, or terms of service that (1) prohibit water waste such as, but not limited to: single-pass cooling systems; conveyer and in-bay vehicle wash and commercial laundry systems which do not reuse water; non-recirculating decorative water fountains and (2) address irrigation, landscape, and industrial, commercial, and other design inefficiencies.

b) Existing users

Enact, enforce, or support legislation, regulations, ordinances, or terms of service that prohibit water waste such as, but not limited to: landscape and irrigation inefficiencies, commercial or industrial inefficiencies, and other misuses of water.

c) Water shortage measures

Enact, enforce, or support legislation, regulations, ordinances, or terms of service that facilitate implementation of water shortage response measures.

The Sacramento District does not have legal authority to issue ordinances, and must obtain approval from the CPUC to implement water conservation programs, including voluntary and/or mandatory measures. In July 2009, California American Water filed Rule 14.1 with the CPUC to define water conservation measures and the approval process that California American must follow to implement mandatory water conservation (Appendix K).

Section D of Rule 14.1 (Appendix K) defines water conservation requirements that are effective at all times until deactivated by the CPUC. These conservation requirements limit the water waste from new developments and existing customers.

Sections E through H of Rule 14.1 (Appendix K) list the specific requirements of the Sacramento District's 3 mandatory conservation stages. The Sacramento District must receive authorization from the CPUC before implementing mandatory conservation measures.

The mandatory conservation stages listed in Rule 14.1 shall remain dormant until the Sacramento District submits a letter to the CPUC and receives authorization to declare mandatory conservation. The mandatory conservation request letter to the CPUC shall include justification for activating the particular mandatory conservation stage, as well as the expected duration the mandatory conservation will be in effect.

6.2.3 BMP 1.1.3 WHOLESALE AGENCY ASSISTANCE PROGRAMS (DMM J)

This BMP is not applicable to retail water suppliers.

6.2.4 BMP 1.2 WATER LOSS CONTROL (DMM C)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

1) Standard Water Audit and Water Balance. All agencies shall quantify their current volume of apparent and real water loss. Agencies shall complete the standard water audit and balance using the AWWA Water Loss software to determine their current volume of apparent and real water loss and the cost impact of these losses on utility operations at no less than annual intervals.

2) Validation. Agencies may use up to four years to develop a validated data set for all entries of their water audit and balance. Data validation shall follow the methods suggested by the AWWA Software to improve the accuracy of the quantities for real and apparent losses.

3) Economic Values. For purposes of this BMP, the economic value of real loss recovery is based upon the agency's avoided cost of water as calculated by the Council's adopted Avoided Cost Model or other agency model consistent with the Council's Avoided Cost Model.

4) Component Analysis. A component analysis is required at least once every four years and is defined as a means to analyze apparent and real losses and their causes by quantity and type. The goal is to identify volumes of water loss, the cause of the water loss and the value of the water loss for each component. The component analysis model then provides information needed to support the economic analysis and selection of intervention tools. An example is the Breaks and Background Estimates Model (BABE) which segregates leakage into three components: background losses, reported leaks and unreported leaks.

5) Interventions. Agencies shall reduce real losses to the extent cost-effective. Agencies are encouraged to refer to the AWWA's 3rd Edition M36 Publication, Water Audits and Loss Control Programs (2009) for specific methods to reduce system losses.

6) Customer Leaks. Agencies shall advise customers whenever it appears possible that leaks exist on the customer's side of the meter.

The District measures and records well production in each service area. In addition, the District's connections with water wholesalers in the service areas of Antelope, Lincoln Oaks, Parkway and West Placer are metered. The sum of the well production and imported water supply gives a measure of the District's total production. The District is not 100% metered so the total deliveries are estimated, not measured.

The District completed training in the AWWA Water Audit Method and the Component Analysis Process (30). In 2010, the District began using the AWWA Water Loss software to analyze water losses. The District performed the audit for a one-year period beginning March 2009 and ending February 2010. According to the AWWA audit results, apparent losses were 136 MG (417 AF) and real losses were 846 MG (2,596 AF). Thus, the total water losses were 982 MG (3,013 AF) for the audit period (31). In addition to the audit, the District completed its most recent Component Analysis in February 2010 (30).

The District repairs all reported leaks as well as locates and repairs unreported leaks to the extent cost-effective (30). The District is in the process of developing a statewide policy for water loss and leak detection. In addition, the District provides leak detection information and assistance to its customers through providing educational tools and giveaways, such as dye tablets, to detect leaks. This is discussed under BMP 3.1 (Section 6.2.9).

6.2.5 BMP 1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS (DMM D)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

- 1) Require meters for all new service connections.*
- 2) Establish a program for retrofitting existing unmetered service connections.*
- 3) Read meters and bill customers by volume of use.*
 - a) Establish and maintain billing intervals that are no greater than bi-monthly (every two months) for all customers.*
 - b) For each metered connection, perform at least five actual meter readings (including remotely sensed) per twelve month period.*
- 4) Prepare a written plan, policy or program that includes:*
 - a) A census of all meters, by size, type, year installed, customer class served and manufacturer's warranty accuracy when new;*
 - b) A currently approved schedule of meter testing and repair, by size, type and customer class;*
 - c) A currently approved schedule of meter replacement, by size, type, and customer class; and*

5) Identifying intra- and inter-agency disincentives or barriers to retrofitting mixed use commercial accounts with dedicated landscape meters, and conducting a feasibility study(s) to assess the merits of a program to provide incentives to switch mixed use accounts to dedicated landscape meters.

The District has both metered and unmetered connections. All new connections in the District are metered. As described in section 3.4.1, the District began implementing a prioritized meter retrofit program in 2003 to install meters at existing unmetered connections. The Antelope, Arden, Isleton, Security Park, Walnut Grove and West Placer service areas are now 100% metered (excluding private fire connections which are exempt from metering requirement per the CUWCC MOU). In 2010, approximately 65% of the District’s connections were metered (excluding private fire connections). The District plans to be fully metered by the end of 2014. The number of connections that have been retrofitted are shown in Table 49. The meter retrofit schedule through 2014, at which time the District will be fully metered, is shown in Table 50.

Table 49. Number of Connections Retrofitted with Meters

Actual	2006	2007	2008	2009	2010
Number of meters installed on existing unmetered connections	4,402	2,500	Unknown	6,917	7,279
¹ Source: 2006 PUC Report (32)					
² Source: 2007 PUC Report (33)					
³ Source: 2009 BMP Report to CUWCC (34)					
⁴ Source: 2010 BMP Report to CUWCC (35)					

Table 50. Number of Connections Planned to be Retrofitted with Meters

Planned	2011	2012	2013	2014
Number of meters installed on existing unmetered connections	6,779	6,773	6,598	983
¹ Source: Sacramento District Meter Retrofit Schedule (36)				

The District bills customers on a bi-monthly basis. Customers with metered connections are billed a service charge and a usage rate/commodity charge for each unit of water consumed. Residential customers with unmetered connections are billed according to the size of the premise. Except for private fire connections, there are no unmetered non-residential connections. More details on rate structures are provided under BMP 1.4 (Section 6.2.6).

The District maintains a database to track meters and record years in service. In addition, the District follows a plan to test, repair, and replace water meters. This plan, called the Meter Testing, Repair, and Replacement Plan, specifies the testing criteria and the replacement criteria for meters, according to meter size. In 2009, 11 meters were tested (37).

The District currently has 1,614 dedicated landscape meters (38). The District is continually evaluating the benefits of conducting a feasibility study to assess a possible incentive program to switch mixed-use accounts to dedicated landscape meters. Although the District has not yet conducted a formal feasibility study of this nature, the District will implement a study if the need and benefits become compelling.

The District plans to continue to implement this BMP. The gpcd in the District has decreased by approximately 28% since 2003 when the meter retrofit program began. As the percentage of metered connections in the District increases, water savings are expected. According to the CUWCC MOU, meter retrofits combined with volumetric rates are assumed to result in a 20% reduction in demand for retrofitted connections (28).

6.2.6 BMP 1.4 RETAIL CONSERVATION PRICING (DMM K)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Conservation pricing provides economic incentives (a price signal) to customers to use water efficiently. Because conservation pricing requires a volumetric rate, metered water service is a necessary condition of conservation pricing. Unmetered water service is inconsistent with the definition of conservation pricing.

Conservation pricing requires volumetric rate(s). While this BMP defines a minimum percentage of water sales revenue from volumetric rates, the goal of this BMP is to recover the maximum amount of water sales revenue from volumetric rates that is consistent with utility costs (which may include utility long-run marginal costs), financial stability, revenue sufficiency, and customer equity.

Part I. Retail Water Service Rates

In addition to volumetric rate(s), conservation pricing may also include one or more of the following other charges:

- 1) Service connection charges designed to recover the separable costs of adding new customers to the water distribution system.*
- 2) Monthly or bimonthly meter/service charges to recover costs unrelated to the volume of water delivered or new service connections and to ensure system revenue sufficiency.*
- 3) Special rates and charges for temporary service, fire protection service, and other irregular services provided by the utility.*

The following volumetric rate designs are potentially consistent with the above definition:

- 1) Uniform rate in which the volumetric rate is constant regardless of the quantity consumed.*
- 2) Seasonal rates in which the volumetric rate reflects seasonal variation in water delivery costs.*
- 3) Tiered rates in which the volumetric rate increases as the quantity used increases.*
- 4) Allocation-based rates in which the consumption tiers and respective volumetric rates are based on water use norms and water delivery costs established by the utility.*

Adequacy of Volumetric Rate(s): A retail agency's volumetric rate(s) shall be deemed sufficiently consistent with the definition of conservation pricing when it satisfies at least one of the following two options.

Option 1: Let V stand for the total annual revenue from the volumetric rate(s) and M stand for total annual revenue from customer meter/service (fixed) charges, then:

$$V/(V+M) \geq 70\%$$

This calculation shall only include utility revenues from volumetric rates and monthly or bimonthly meter/service charges. It shall not include utility revenues from new service connection charges; revenue from special rates and charges for temporary service, fire protection, or other irregular services; revenue from grants or contributions from external sources in aid of construction or program implementation; or revenue from property or other utility taxes.

Option 2: Use the rate design model included with the Municipal Water and Wastewater Rate Manual published by the Canadian Water & Wastewater Association with the signatory's water system and cost information to calculate V', the uniform volume rate based on the signatory's long-run incremental cost of service, and M', the associated meter charge. [Let HCF be annual water delivery (in hundred cubic feet).] A signatory's volumetric rate(s) shall be deemed sufficiently consistent with the definition of conservation pricing if:

$$V/V+M \geq V' / V' + M'$$

Part II. Retail Wastewater Service Rates

Conservation pricing of sewer service provides incentives to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service, and billing for sewer service based on metered water use. Conservation pricing of sewer service is also characterized by one or more of the following components: rates in which the unit rate is the same across all units of service (uniform rates); rates in which the unit rate increases as the quantity of units purchased increases (increasing block rates); rates in which the unit rate is based upon the long-run marginal cost or the cost of adding the next unit of capacity to the sewer system. Rates that charge customers a fixed amount per billing cycle for sewer service regardless of the units of service consumed do not satisfy the definition of conservation pricing of sewer service. Rates in which the typical bill is determined by high fixed charges and low commodity charges also do not satisfy the definition of conservation pricing of sewer service.

The type of rate structure used by the District for each connection type is shown in Table 51 and is described here:

- (1) Metered Connections: Customers with metered connections are charged a uniform rate, in which the volumetric rate is constant regardless of the amount of water consumed (single tier). In addition, the District's rates include a monthly service charge per meter depending on the size of the connection.

- (2) Unmetered Connections: Residential customers with unmetered connections are charged a fixed monthly fee based on the size of the premise and the number of residences on the premise served by the same connection. There are no unmetered non-residential connections.
- (3) Private Fire Connections: Private fire protection systems and private fire hydrants are charged a fixed monthly fee per hydrant or connection, and are not included in the revenue calculation below according to the CUWCC MOU.

Table 51. Water Rate Structures

Customer Type	Water Rate Structure
Residential	Single Tier Volumetric Rate (for metered connections); Flat Rate (for unmetered connections)
Commercial	Single Tier Volumetric Rate
Industrial	Single Tier Volumetric Rate
Institutional/Government	Single Tier Volumetric Rate
Irrigation	Single Tier Volumetric Rate
Private Fire	Fixed

Option 1 was chosen to analyze the adequacy of volumetric rates and is shown below for 2010:

$$V / (V+M) \geq 70\%$$

$$19,555,542 / (19,555,542 + 160,158,588) = 0.55 \text{ (55\%)}$$

As shown in the above calculation, revenue from volumetric rates did not account for 70% or more of the total revenue in 2010. This is due to the existing unmetered residential connections in the District that have yet to be retrofitted with meters.

This BMP is scheduled to be implemented by 2014. The District plans to continue to use a single-tier volumetric rate for metered connections. As unmetered residential connections are retrofitted with meters (schedule shown in Table 50), the District will switch customers from flat rate to single tier volumetric pricing. The percentage of revenue from volumetric rates will increase as these connections are retrofitted with meters. At the completion of the meter retrofit program in 2014, volumetric charges are expected to account for more than 70% of the total annual revenue.

Water savings are expected to result from implementation of this BMP. As stated under BMP 1.3, the CUWCC MOU assumes that meter retrofits combined with volumetric rates results in a 20% reduction in demand for retrofitted connections (28). In 2010, unmetered single family residential connections were estimated to use 0.58 AFY per connection. A 20% reduction would result in water use of 0.45 AFY per connection. In 2010, 7,279 meters were retrofitted, which is estimated to yield approximately 826 AFY of incremental water savings.

The District does not provide sewer service; thus, part 2 of this BMP is not applicable.

6.2.7 BMP 2.1 PUBLIC INFORMATION PROGRAMS (DMM G)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

1) The program should include, when possible, but is not limited to, providing speakers to employees, community groups and the media; using paid and public service advertising; using bill inserts; providing information on customers' bills showing use for the last billing period compared to the same period the year before; providing public information to promote water conservation measures; and coordinating with other government agencies, industry groups, public interest groups, and the media.

2) The program should include, when possible, social marketing elements which are designed to change attitudes to influence behavior. This includes seeking input from the public to shape the water conservation message; training stakeholders outside the utility staff in water conservation priorities and techniques; and developing partnerships with stakeholders who carry the conservation message to their target markets.

3) When mutually agreeable and beneficial, the wholesale agency or another lead regional agency may operate all or part of the public information program. If the wholesale agency operates the entire program, then it may, by mutual consent with the retail agency, assume responsibility for CUWCC reporting for this BMP. Under this arrangement, a wholesale agency may aggregate all or portions of the reporting and coverage requirements of the retail agencies joining into the mutual consent.

The District is a member of the Regional Water Authority (RWA) and participating member of the Regional Water Efficiency Program (RWEF). RWA performs public outreach on behalf of the District. In addition, the District's staff performs public outreach.

6.2.7.1 RWA Program

The following description is provided by RWA and describes the public outreach program carried out through RWEF.

Description of Ongoing Regional Public Information Campaign

The District fully participates in the RWEF Public Information Campaign.

The Regional Water Efficiency Program has a regional outreach program coordinated with support from a Public Outreach and School Education Committee comprised of RWEF 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 (logo shown in Figure 27). 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



Figure 27. Be Water Smart Logo (provided by RWA)

In 2010, the Regional Water Authority (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 the Regional 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 RWEF participant area.
- In particular, RWA and 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 web site (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 web site has been expanded to be a more comprehensive water conservation related site. A screenshot of the website is shown in Figure 28.

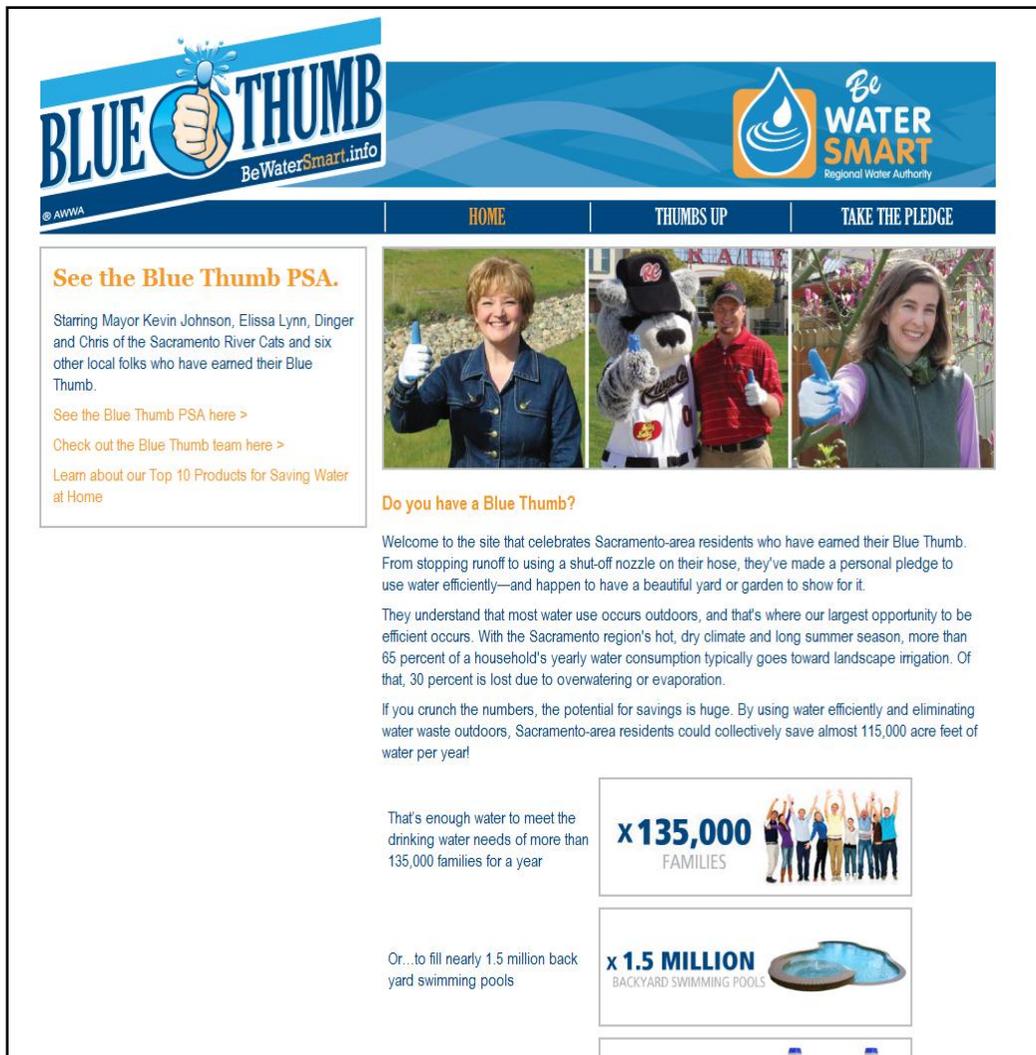


Figure 28. RWA's Blue Thumb Webpage

(Source: <http://www.bewatersmart.info/blue-thumb/>)

Steps to Implement the Regional Public Information Campaign

RWA provides avenues and tools for program participants to carry the Blue Thumb campaign in their own outreach efforts.

Tools include key messages, Web site/newsletter text, bill insert template, Blue Thumb pledge and collateral materials. Outreach avenues include the opportunity to nominate customers to star in the outreach campaign, participation in the Home Depot partnership by featuring their logo on the in-store banners and connecting with customers at events. One water provider whose customer was selected to star in television advertising posted the customer's Blue Thumb interview to YouTube with a link to their Web site. Others included campaign information on their Web sites, newsletters, billing envelopes and "on-hold" phone messages, as well as collected pledges via the form or pledge banner at community events.

Marketing Strategy for the Regional Public Information Campaign

The following marketing strategies were used as tactics to meet the goals of the Public Information Campaign.

Specifically for the program, tactics used in the period of 2005-2009 included:

- Planned and executed the 2008 and 2009 Ultimate Water Smart Garden Makeover Contest as a regional media event which included a full remake of the winner's front yard landscape with donated time and materials worth \$40,000
- Public service announcements (hundreds of airings on radio and TV)
- Paid advertisements (print ad, television segments)
- Manage Be Water Smart hotline, 1-888-WTR-TIPS
- 5 Be Water Smart e-blasts to 40,000 people
- Participation at public events
- Bill inserts, brochures (e.g. River-Friendly Landscaping and Rules of Thumb for Water Wise Gardening)
- Demonstration garden support to the Fair Oaks Horticulture Center managed by the Sacramento County University of California Cooperative Extension (UCCE)
- Develop partnerships for co-promotion of programs including the following agencies:
 - Sacramento Municipal Utility District (SMUD)
 - Sacramento Regional County Sanitation District (SRCSD)
 - Sacramento Area Water Forum
 - Sacramento Bee
 - Sacramento Stormwater Quality Partnership
 - University of California Cooperative Extension

In addition, the tactics to meet the 2011 and future goals of the revised Public Information campaign include:

- Campaign web site (BeWaterSmart.info) where visitors can take the pledge to use water wisely and view video clips from campaign participants explaining how they earned their Blue Thumb
- A statistically valid telephone survey completed in 2009 of 604 adults to provide insight into attitudes, behaviors, messages and methods of communication. The survey will be repeated in September 2011 to evaluate the campaign.
- A unique and eye-catching campaign graphic identity
- Media outreach to announce the campaign and promote the opportunity for residents to star in advertising, as well as a campaign launch press event
- Television and radio advertising (paid) on KOVR (CBS TV), Comcast Cable, Capitol Public Radio and Clear Channel radio stations
- Public Service Announcements (PSAs) (no-cost placement) distributed to television and radio stations throughout the Sacramento region

- Promotional partnership with WaterSense and 16 Home Depots throughout the Sacramento region for Water Awareness Month in May. This included training by RWA on water efficient topics for Home Depot associates, promoting RWA's "Top 10 List" of water efficient products either via end-cap displays or table displays, in-store banners promoting Water Awareness Month and events where water providers connected with customers at Home Depot stores
- Partnership with the Sacramento River Cats (Sacramento's popular minor league baseball team) and Save Our Water that included placing water efficiency advertisements in 110 bathroom stalls at Raley Field, a blast e-mail by the Sacramento River Cats to 1,700 fans promoting the Blue Thumb Web site pledge and inclusion of a promotional flyer in 1,000 Save Our Water totes distributed at the California State Fair
- Collateral materials such as garden gloves, lawn signs, pledge banner and T-shirts with the Blue Thumb logo as an incentive for taking the Blue Thumb pledge online or at events

RWA also hosts a Speakers Bureau. For example in 2009-11, speaking engagements included the following by RWA staff and by Regional Water Efficiency Program participants from the Cities of Folsom and Roseville:

- Northern California Ace Hardware stores on regional water efficiency programs, Home Depot associates on water efficient products, rebates, and Water Awareness Month, LOWE's stores throughout the region on water efficient products, rebates, and Water Awareness Month promotion, Rainbird Training Academy on local efforts of AB1881, UC Davis WaterWise Symposium on Blue Thumb campaign and local efforts of AB1881, Association of Professional Landscape Architects on local landscape programs, Association of Professional Landscape Designers on local efforts of AB1881 and River Friendly Turf Management Workshop on local agency landscape efficiency rebate program
- California Green Summit on future green jobs in the water industry, River Friendly Landscaping Homeowner Workshop Series on irrigation efficiency, irrigation controller scheduling, water efficiency in the landscape, Raley Field Turf Management Workshop on RWA programs
- Department of Water Resources training on local agency implementation of AB1881, California Association of Public Information Officials state conference about Blue Thumb Neighbors

In the future, RWA will continue to work with participating agencies on a regional outreach message appropriate for the current year's water outlook. RWA will continue to provide key messages and update water provider tools as necessary, track the number of media stories (or hits), interviews conducted, and number of impressions of audience viewings.

Tracking of participation and results of participation for the Regional Campaign

After the first year of the "Blue Thumb" program, results were tracked for 2010 and include the following outcomes:

- Nearly 30 earned media hits covering topics such as the campaign announcement/search for residents to participate, campaign launch, Home Depot events/Water Awareness Month and Blue Thumb Web site pledge.
- Interviews on multiple public service radio programs, including Clear Channel (where the host even took the Blue Thumb pledge on the air!) which broadcast on five local stations and Family radio, which aired on two local stations
- Nearly 3.9 million impressions via paid television advertising and 6.3 million impressions via paid radio advertising
- More than 1.2 million impressions for the (no-cost) television PSA (worth an estimated \$24,500) and over 3 million impressions for the radio PSA (worth an estimated \$96,264)

Planned Implementation Schedule and Budget for the Regional Public Information Campaign

The general schedule for the regional public information campaign follows the annual calendar with the following seasonal activities:

- Winter – planning for upcoming year’s activities, continue to promote participation in the District’s programs, such as high efficiency toilet and clothes washer rebates.
- Spring – ramping up messaging and strong focus in soliciting media coverage and paid advertising in support of May as Water Awareness Month. Messaging surrounds the traditional spring planting season and checking of irrigation systems as they are turned on and taking the “Blue Thumb Pledge” to lower outdoor water use this season.
- Summer – key messaging hits on the issues of efficient irrigation techniques, avoiding water waste, and lowering peak demands on hot summer days.
- Fall – participating in local Harvest day events and providing efficient landscape irrigation trainings for professionals that focus on selecting more water efficient plants and irrigation equipment, and when the weather cools and rains return, then messaging calls for shutting down irrigation systems for the winter months.

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 our own District’s outreach efforts. In addition, the District will continue to support community events similar to those conducted in the past as described above.

The annual budget for direct expenses to continue with the regional outreach campaign is planned for 2011-2015 to be \$160,000 each fiscal year.

Method for evaluation of effectiveness of the Regional Public Information Campaign

RWA will conduct an evaluation on a minimum of a bi-annual basis to determine the campaign’s effectiveness using the following means:

- Statistically valid post-campaign telephone survey (results compared to 2009 pre-campaign survey responses).

- Tracking of pledges secured both online and by individual RWEF member utility efforts.
- Web site analytics analysis.
- Tracking water provider materials that carry Blue Thumb messages.
- Media and online mentions and content analysis of hits.
- Impressions for television and radio advertising and public service announcements
- Impressions for partner activities (such as the Sacramento River Cats).
- For the Community Based Social Marketing (CBSM) program: Internet/written surveys (and potentially informal phone interviews) and water use data tracking.

In the future, RWA will conduct another random survey of Sacramento area residents, which will seek to measure if the following goals for the campaign are being achieved:

- Increase the number of residents willing to utilize various yard design and maintenance practices promoted by the campaign.
- Increase the number of residents who say they have adopted yard design and maintenance practices promoted by the campaign.
- Increase the number of residents that have seen, read or heard news stories, public information, advertisement or other messages regarding water efficiency in the past six months.
- Increase the number of residents naming key messages promoted by the campaign in verbatim responses about the advertising or messages they heard.

Based on the results of the post-campaign survey, RWA is expecting to measure the success of this DMM based on the metrics listed above. If the campaign is not proving effective based on these metrics, then RWA will update or revise the campaign, or if necessary begin a new campaign, to garner more customer participation.

Estimated Water Savings for the Regional Blue Thumb Campaign

There is no current method in the industry to evaluate water savings for this program.

The popularity of public programs can be measured through the acceptance of brochures and attendance at various water conservation related events, etc.

6.2.7.2 District's Programs

The District performs public outreach specifically for the District's customers. To support the District's meter retrofit program (discussed under BMP 1.3), the District conducted three meter retrofit open houses in 2010 to educate customers that will begin receiving metered bills in 2010 (attended by about 150 customers in total). In 2010, the District also conducted a project open house (attended by about 40 customers) and two general rate case meetings for all interested customers (attended by about 250 customers total) (29).

The District's external affairs team also participated in over 20 community meetings sponsored by other groups, including cities, homeowner associations and neighborhood watch groups, where the District presented information about water meters, conservation programs, rebates and services (29).

One of the District's most successful outreach events was the Annual Salmon Festival in Folsom, which was cancelled in 2010. Prior to 2010, over 20,000 people attend the festival each year. The District hosted a booth where District staff promoted rebate programs, educated customers on irrigation efficiency, distributed educational materials, and entertained children with the Mr. Leaky costume and interactive Water whiz game (33).

Public Outreach and events are funded through the District's conservation surcharge and through general rates collection as part of the operations budget. The expenses under the conservation surcharge include educational and water saving materials, displays and informative giveaways, conservation related bill inserts and mailers, and special outreach letters to customers on water conservation. Expenses for events and activities such as event sponsorship, Company booth fees, and room fees, are funded through the general operations budget under Community Relations.

The effectiveness of this BMP cannot be measured quantitatively. However, it is assumed that educating the public in water conservation increases general awareness of water conservation issues and has contributed to the decline in water use seen in the District through 2010. Public outreach is expected to continue to play an important role in the District's conservation efforts and to help the District meet its 2020 gpcd target.

6.2.7.3 Summary of Events

The public outreach performed both by RWA and the District from 2006-2010 is summarized in Table 52. The District plans to continue implementing this BMP through its membership in RWEP and through in-house staff. Future public outreach involvement is summarized in Table 53.

Table 52. Number of Actual Public Outreach Events

Actual	2006	2007	2008	2009	2010
a. Paid advertising	1	Yes ¹	-	-	3 ²
b. Public Service Announcement	-	-	-	4 ³	2 ⁴
c. Bill Inserts / Newsletters / Brochures	2	Yes ¹	Yes ¹	2	Yes ¹
d. Bill comparing previous water usage	-	-	-	-	-
e. Demonstration Gardens	-	-	-	-	-
f. Special Events, Media Events	2	Yes ¹	Yes ¹	Yes ¹	Yes ¹
g. Speaker's Bureau	-	-	-	-	-
h. Program to coordinate with other govt agencies, industry and public interest groups and media	-	-	-	-	-
i. Public meetings	-	Yes ¹	7	25	22
j. Media interviews/stories/contacts ⁵	-	-	-	17	15
k. News releases ⁵	-	Yes ¹	-	7	4
¹ Reports do not specify number of events.					
² RWEF ran paid advertising on KOVR-TV (CBS), Comcast cable, Clear Channel radio, and Capitol Public Radio.					
³ REWP distributed 4 public service announcements to public radio service director in both English and Spanish.					
⁴ REWP ran public service announcements on regional television and radio stations (broadcasted approximately 228 times on television and 1,351 times on radio).					
⁵ Performed by District staff.					

Table 53. Number of Planned Public Outreach Events

Planned	2011	2012	2013	2014
a. Paid advertising	2	3	3	3
b. Public Service Announcement	3	5	5	5
c. Bill Inserts / Newsletters / Brochures	3	4	4	4
d. Bill comparing previous water usage	-	-	-	-
e. Demonstration Gardens	-	-	1	-
f. Special Events, Media Events	4	4	4	4
g. Speaker's Bureau	4	4	4	4
h. Program to coordinate with other govt agencies, industry and public interest groups and media	5	4	4	4
i. Public meetings	Included in h.			
j. Media interviews/stories/contacts	Included in f.			
k. News releases	Included in b. & c.			

6.2.8 BMP 2.2 SCHOOL EDUCATION PROGRAMS (DMM H)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

- 1) Implement a school education program to promote water conservation and water conservation-related benefits.*
- 2) Programs shall include working with school districts and private schools in the water suppliers' service area to provide instructional assistance, educational materials, and classroom presentations that identify urban, agricultural, and environmental issues and conditions in the local watershed. Educational materials shall meet the state education framework requirements and grade-appropriate materials shall be distributed.*
- 3) When mutually agreeable and beneficial, the wholesale agency or another lead regional agency will operate all or part of the education program; if the wholesale agency operates all or part of the retail agency's school education program, then it may, by mutual consent with the retail agency, assume responsibility for CUWCC reporting of this BMP; under this arrangement, a wholesale agency may aggregate all or portions of the reporting and coverage requirements of the retail agencies joining into the mutual consent.*

RWA carries out school education programs for the District through the RWEF. RWA distributes educational materials to K-6th students. The material meets the state education framework and includes student supplements, teaching materials, and the California Waterways map. RWA holds contests for students in K-4th grades and 5th-8th grades (39). RWA and the District also participate in classroom presentations, school assemblies, and water events for children.

The following description is provided by RWA and describes the public outreach program carried out through RWEF.

Description of Past and Ongoing Regional School Education Program

The District fully participates in the RWEF School Education Program.

The RWEF program has focused mainly on K-8 programs. RWEF 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.

Historically between 2004 and 2008, RWEF 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 reduced polluted stormwater runoff.

In FY 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.

Steps to Implement Regional School Education Program

The RWEP 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) materials; and (5) an implementation strategy for the school education program into the future.

Marketing Strategy for the Regional School Education Program

The current marketing strategy for the SacBee MIE program is both email to teachers that have participated in the past and direct mail campaign to local schools for the whole series of topics throughout the year. Each teacher decides on which week's topics to participate in that cover a wide range of education topics including RWEP's sponsored week of "Be Water Smart News, Water the Never Ending Story." The SacBee MIE program logo is shown in Figure 29.



Figure 29. MIE Program Logo

The Project WET workshops are marketed to teachers and environmental educators by the local California Regional Environmental Education Community (CREEC) Network representatives, to water educators through Project WET newsletters, and by RWA through direct mail and contacts with local school administrations and teachers. The Project WET logo is shown in Figure 30.



Figure 30. Project WET Logo

Tracking of participation and results of participation in the Regional Program

RWA continues to track by a variety of means participation in the regional school education program. For the SacBee MIE Program, the metrics tracked annually include:

- Number of teacher guides downloaded
- Number of schools
- Number of classrooms
- Number of students reached
- Number of students participating in the pledge (Grades K-3) or contest (Grades 4-8) entries received by the SacBee
- Comments back from teachers

For the Project WET teacher training program, the following metrics are also tracked annually:

- Number of teachers attending workshops
- Which school districts
- Number of schools
- Estimated number of students reached
- Teacher workshop evaluations

Planned Implementation Schedule and Budget for the Regional Program

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 have been \$20,000 and will continue at this level for the foreseeable future.

Method for evaluation of effectiveness of Regional School Education Program

Based on the annual results of the participation levels tracked, RWA is expecting to measure the success of this DMM based on the metrics listed above. As described above, RWA is currently conducting an evaluation process of the existing regional school education program, which includes interviews of local school teachers at a variety of grade levels. The program will continue as currently planned until the evaluation process is complete and the program's content and/or implementation strategy may be revised in the future.

Estimated Water Savings for the Regional School Education Program

It is unknown what changes in water using behavior may arise from student and educators participation in the regional school education programs. Considering the difficulty of placing a numerical value for water savings, an intangible method of effectiveness and resulting water savings, can be determined by the amount of voluntary classroom and school participation with available K-12 water conservation programs.

A summary of the number of students reached through various methods is shown in Table 54. The District plans to continue implementing this BMP by maintaining its membership in the RWEF. A summary of the number of students expected to be reached is shown in Table 55.

Table 54. Number of Students Reached

Actual	2006	2007	2008	2009	2010
Grades K-3rd	-	-	-	3,699 ¹	1,293 ¹
Grades 4th-6th	-	-	2,200	3,699 ¹	1,293 ¹
Grades 7th-8th	-	-	-		-
High School	-	-	-		-
Unspecified	-	1,000	-	3,753	150
Total	-	1,000	2,200	11,151	2,736

¹ Number of students reached for K-6th was divided by 2 to estimate number reached in grades K-3rd and number reached in grades 4th-6th.

Table 55. Number of Students Expected to be Reached

Planned	2011	2012	2013	2014
Grades K-3rd	0	0	0	0
Grades 4th-6th	1,682	1,500	1,500	1,500
Grades 7th-8th	0	0	0	0
High School	0	0	0	0
Unspecified	0	0	0	0
Total	1,682	1,500	1,500	1,500

6.2.9 BMP 3.1 RESIDENTIAL ASSISTANCE PROGRAM (DMM A/ DMM B)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Provide site-specific leak detection assistance that may include, but is not limited to, the following: a water conservation survey, water efficiency suggestions, and/or inspection. Provide showerheads and faucet-aerators that meet the current water efficiency standard as stipulated in the WaterSense Specifications (WSS) as needed.

The District has a Residential Water Audits Program and a Residential Plumbing Retrofit Program. The Residential Water Audits Program provides free residential audits for single and multi-family properties. The audits are carried out by the District’s staff or the District’s consultant, WaterWise Consulting Services, Inc. The audits include a detailed assessment of the indoor and outdoor usage, an individualized water budget, and recommended monthly irrigation schedule. In addition, the customer receives a comprehensive audit package with applicable water savings devices, water and energy rebate application forms, and educational material. All audit data and information is collected and maintained in an Excel database to allow for easy tracking of water saving opportunities and natural upgrade trends for toilets and other water saving devices. The Residential Water Audits Program was funded out of the conservation surcharge one-way balancing account.

The historical and projected number of residential audits performed in the District are shown in Table 56 and Table 57.

Table 56. Actual Residential Water Audits

Actual	2006	2007	2008	2009	2010
Number of residential audits	136	161	181	212	462
Actual water savings – AFY ¹	4.90	5.80	6.52	7.63	16.63

¹ Assumes 0.036 AFY of savings per audit based on CUWCC BMP Water Savings Worksheet for residential audits.

Table 57. Planned Residential Water Audits

Planned	2011	2012	2013	2014
Number of residential audits	150	125	125	125
Projected water savings - AFY ¹	5.40	4.50	4.50	4.50

¹ Assumes 0.036 AFY of savings per audit based on CUWCC BMP Water Savings Worksheet for residential audits.

Through the Residential Plumbing Retrofit Program, the District provides customers various water saving devices including showerheads, faucet aerators (kitchen and bathroom), toilet leak detection tablets, garden hose spray nozzles, soil probes, and educational pamphlets. The devices and materials are provided to customers upon request at community events and meetings, office walk-ins, customer call-ins, and through the home water survey program. The Residential Plumbing Retrofit Program was funded out of the conservation surcharge one-way balancing account. The historical and projected devices distributed the program are shown in Table 58 and Table 59, respectively.

Table 58. Actual Number of Plumbing Retrofit Devices

Actual	2006	2007	2008	2009	2010
Showerhead	96	800	139	352	898
Faucet Aerator	336	2,600	270	668	1,493
Toilet Flapper	-	50	30	12	-
Tankbank	-	60	35	99	390
Drip Gauge	-	-	-	-	429
Leak Detection Tablets	-	1,000	221	587	1,153
Shower Timers	-	-	-	-	323
Hose Spray Nozzle	-	1,200	148	267	397
Hose Timer	-	-	68	141	182
Soil Probe	-	700	106	210	285
Rain/Sprinkler Gauge	-	225	128	325	191
Other	-	-	300	1,032	-
Educational Materials		-	326	1,423	-
Total Number of Devices¹	432	6,635	1,445	3,693	5,741
Actual water savings – AFY²	1.16	10.01	1.47	3.71	1.77

¹ Does not include educational materials.

² Total water savings only includes savings for showerheads (0.0062 AFY/device), faucet aerators (0.0017 AFY/device), toilet flappers (0.0047 AFY/device) and leak detection tablets (0.0007 AFY/device). Water savings assumptions shown are based on CUWCC BMP Water Savings Worksheets for each device.

Table 59. Planned Number of Plumbing Retrofit Devices

Planned	2011	2012	2013	2014
Showerhead	740	700	700	700
Faucet Aerator	1100	1000	1000	1000
Toilet Flapper	-	50	50	50
Tankbank	250	150	150	150
Drip Gauge	400	300	300	300
Leak Detection Tablets	1050	1000	1000	1000
Shower Timers	280	280	280	280
Water Efficiency Measurer Bag	-	200	200	200
Hose Spray Nozzle	420	350	350	350
Soil Probe	260	250	250	250
Rain/Sprinkler Gauge	220	200	200	200
Other	-	-	-	-
Educational Materials	-	-	-	-
Total Number of Devices¹	4,720	4,480	4,480	4,480
Actual water savings – AFY²	7.16	6.94	6.94	6.94
¹ Does not include educational materials.				
² Total water savings only includes savings for showerheads (0.0062 AFY/device), faucet aerators (0.0017 AFY/device), toilet flappers (0.0047 AFY/device) and leak detection tablets (0.0007 AFY/device). Water savings assumptions shown are based on CUWCC BMP Water Savings Worksheets for each device.				

In addition to devices shown above, the District provides turf exchange rebates and smart controller rebates. In 2010, the District launched a pilot turf exchange program, which provides rebates for customers to replace lawn with low water use plants, permeable surfaces or synthetic turf. Residential customers are eligible for up to \$1 per square foot of turf removed, up to \$2,000. The District also offers rebates for smart irrigation controllers of \$200 for residential customers.

6.2.10 BMP 3.2 LANDSCAPE WATER SURVEY (DMM A)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Perform site-specific landscape water surveys that shall include, but are not limited to, the following: check irrigation system and timers for maintenance and repairs needed; estimate or measure landscaped area; develop customer irrigation schedule based on precipitation rate, local climate, irrigation system performance, and landscape conditions; review the scheduling with customer; provide information packet to customer; and provide customer with evaluation results and water savings recommendations.

Site-specific landscape water surveys for residential customers are included with the Residential Water Audits Program described under BMP 3.1 (Section 6.2.9). Refer to BMP 3.1 (Section 6.2.9).

6.2.11 BMP 3.3 HIGH-EFFICIENCY CLOTHES WASHING MACHINE FINANCIAL INCENTIVES PROGRAMS (DMM F)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Provide incentives or institute ordinances requiring the purchase of high-efficiency clothes washing machines (HECWs) that meet an average water factor value of 5.0. If the WaterSense Specification is less than 5.0, then the average water factor value will decrease to that amount.

The District administers rebates for residential customers to purchase high-efficiency clothes washers (HECWs). In January 2006, the District began a partnership with the Sacramento Municipal Utility District (SMUD) to offer rebates for HECWs. SMUD managed the program at no cost to the District (33). The SMUD-CAW rebate program continued through 2009.

In May 2007, the District began offering a second HECW rebate program, the Smart Rebate program (33). The District partnered with CUWCC to offer the Smart Rebate program which was co-funded by the District and Proposition 50 Water Use Efficiency grant funding through DWR. The program continued through 2008 and into January 2009. DWR funding was frozen on January 31, 2009 (37). From January 31, 2009, through June 2010, the District provided in-house rebates for HECWs. In June 2010, the District resumed its partnership with CUWCC to provide rebates for HECWs through CUWCC's grant-funded Smart Rebate program (29). The District's portion is funded through the conservation surcharge account.

The rebates paid through each program are summarized in Table 60. The District plans to continue implementation of this BMP, as shown in Table 61.

Table 60. Actual Residential HECW Rebates

Actual	2006 ¹	2007	2008	2009	2010 ²
SMUD-CAW Rebate Program					
\$ per rebate	50	50	50	100	-
Number of rebates paid	127 ¹	80	125	100	-
CUWCC Smart Rebate Program					
\$ per rebate	-	Up to 150	Unknown	Unknown	100/108
Number of rebates paid	-	11	52	73	367
Total					
Number of rebates paid	127	91	177	173	367
Actual water savings – AFY³	3.99	2.86	5.56	5.43	11.52
¹ HECW's rebated in 2006 had a water factor less than or equal to 6, which was the lowest water use category in the 2006 CUWCC reporting framework.					
² From January 2010 to June 2010, rebates were \$100 per HECW (provided through CAW in-house funding and RWA funding). After June 2010, rebates were \$108 per HECW (provided through CUWCC's Smart Rebate Program).					
³ Assumes 0.0314 AFY of savings per HECW based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 10 year lifespan (40).					

Table 61. Planned Residential HECW Rebates- Smart Rebate Program

Planned	2011	2012	2013	2014
\$ per rebate	Up to 150	Up to 150	Up to 150	Up to 150
Number of rebates paid	320	240	240	240
Projected water savings – AFY ¹	10.05	7.54	7.54	7.54
¹ Assumes 0.0314 AFY of savings per HECW based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 10 year lifespan (40).				

6.2.12 BMP 3.4 WATER SENSE SPECIFICATION (WSS) TOILETS (DMM N)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Provide incentives or ordinances requiring the replacement of existing toilets using 3.5 or more gpf (gallons per flush) with a toilet meeting WSS.

The current WSS requires that single flush toilets use 1.28 gpf or less, which is 20% less than the federal maximum of 1.6 gpf (41). Consistent with WSS, the CUWCC defines high-efficiency toilets (HETs) as toilets using 1.28 gpf or less. Note that ultra low flush toilets (ULFTs) are defined as toilets that use 1.6 gpf.

The District administers rebates for residential customers to replace existing toilets with HETs. Prior to June 2007, the District provided in-house rebates for replacing inefficient toilets with ULFTs or HETs. From June 2007 through January 2009, the District partnered with CUWCC to offer the Smart Rebate program which was co-funded by the District and Proposition 50 Water Use Efficiency grant funding through DWR. DWR funding was frozen on January 31, 2009 (37). From January 31, 2009, through June 2010, the District provided in-house rebates for HETs. In June 2010, the District resumed its partnership with CUWCC to provide rebates for HETs through CUWCC’s grant-funded Smart Rebate program (29). The District’s portion is funded through the conservation surcharge account.

RWA assists with marketing the District’s program and provides a hotline for customers to call to inquire about rebates and contact information for the District (42).

Table 62. Actual Residential HET Rebates

Actual	2006	2007	2008	2009	2010
Number of HET rebates	155 ¹	140 ²	145	354	324
Actual water savings – AFY ³	3.47	3.14	3.25	7.93	7.26
¹ In 2006, rebates were given for replacing inefficient toilets with ULFTs, which use 1.6 gpf.					
² In 2007, rebates were given for replacing inefficient toilets with ULFTs or HETs or for replacing ULFTs with HETs. This total includes both types of rebates because they are combined in the 2007 report and both yield water savings.					
³ Assumes 0.0224 AFY of savings per HET based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 25 year lifespan (40).					

Table 63. Planned Residential HET Rebates

Planned	2011	2012	2013	2014
Number of HET rebates	25	150	150	150
Projected water savings - AFY ¹	0.56	3.36	3.36	3.36
¹ Assumes 0.0224 AFY of savings per HET based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 25 year lifespan (40).				

In 2010, the District also offered a Low-Income Direct Installation Program to replace old toilets with HETs. Eligible customers were those enrolled in California American Water’s H2O Help to Others program and multi-family customers in disadvantaged areas. The HETs has to replace existing toilets using 3.5 gpf or more. The program was funded out of the conservation surcharge one-way balancing account (29). Through the program, 447 HETs were installed, which yielded savings of approximately 10 AFY based on unit savings of 0.0224 AFY per HET. The District plans to continue to implement this program, as shown in Table 64.

Table 64. Planned Low-Income HET Rebates

Planned	2011	2012	2013	2014
Number of HET rebates	25	80	80	80
Projected water savings - AFY ¹	0.56	1.79	1.79	1.79

¹ Assumes 0.0224 AFY of savings per HET based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 25 year lifespan (40).

6.2.13 BMP 4 COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (DMM I)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Implement measures to achieve the water savings goal for CII accounts of 10% of the baseline water use over a 10-year period. Baseline water use is defined as the water consumed by CII accounts in the agency's service area in 2008. Credit for prior activities, as reported through the BMP database, will be given for up to 50% of the goal; in this case, coverage will consist of reducing annual water use by CII accounts by an amount equal to the adjusted percentage goal within 10 years. Implementation shall consist of item 1) or 2) or both in order to reach the agency's water savings goals.

1) Implement measures on the CII list with well-documented savings that have been demonstrated for the purpose of documentation and reporting. The full list and their associated savings are included in the "Demonstrated Savings Measure List" in Section E below.

2) Implement unique conservation measures to achieve the agency's water savings goals. Sample measures include, but are not limited to: industrial process water use reduction, industrial laundry retrofits, car wash recycling systems, water-efficient commercial dishwashers, and wet cleaning. Water use reduction shall be calculated on a case-by-case basis. Agencies will be required to document how savings were realized and the method and calculations for estimating savings. See the CII Flex Track Menu list in the attachment to Exhibit 1, as updated in the MOU Compliance Policy and BMP Guidebook.

The District offers free water use audits to commercial, industrial, and institutional (CII) customers. The District maintains a contract with WaterWise Consulting, Inc., to carry out the audits. CII audits are customized and include a detailed onsite audit that evaluates the facility, water use patterns, and indoor water use. After the audit, the customer is provided with detailed report containing the audit findings and a summary of recommendations specific to the property. The District began the program in 2010 and, as shown in Table 65, completed 42 CII audits in 2010 (29).

Because the District's CII audits are customized, the water savings differs for each site. The total water savings reported for 2010 is the sum of the savings estimated for each of the audits. The average savings per audit was calculated based on the number of surveys performed and the total estimated savings from all the audits.

The District plans to continue implementation of this BMP by providing CII audits, as shown in Table 66.

Table 65. Actual CII Audits

Actual	2006	2007	2008	2009	2010
Number of surveys completed	-	-	-	-	42
Were incentives provided?	-	-	-	-	Yes
Number of follow-up visits	-	-	-	-	-
Actual water savings – AFY ¹	-	-	-	-	148.68

¹ Assumes average savings of 3.54 AFY per audit based on average savings per audit in 2010, as reported in California American Water’s 2010 Conservation Report to the CPUC (29).

Table 66. Planned CII Audits

Planned	2011	2012	2013	2014
Number of surveys planned	20	70	70	70
Are incentives planned?	Yes	Yes	Yes	Yes
Number of follow-up visits	-	-	-	-
Projected water savings - AFY	70.80	247.80	247.80	247.80

¹ Assumes average savings of 3.54 AFY per audit based on average savings per audit in 2010, as reported in California American Water’s 2010 Conservation Report to the CPUC (29).

In addition to CII audits, the District offers a variety of rebates to commercial customers through the CUWCC Smart Rebate program. In 2010, rebates were available for HETs (up to \$200), HECWs (up to \$400), high-efficiency urinals (HEUs) (up to \$300), pressurized waterbrooms (up to \$50), and x-ray film processor re-circulation systems (up to \$2,000) (29) (43).

The historical and projected number of commercial rebates given for HETs are shown in Table 67 and Table 68, respectively.

Table 67. Actual Commercial HET Rebates

Actual	2006	2007	2008	2009	2010
Number of HET rebates	-	-	-	14	237
Actual water savings – AFY ¹	-	-	-	0.53	8.92

¹ Assumes 0.0374 AFY of savings per HET based on based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 25 year lifespan (40).

Table 68. Planned Commercial HET Rebates

Planned	2011	2012	2013	2014
Number of HET rebates	25	150	150	150
Projected water savings - AFY ¹	0.94	5.65	5.65	5.65
¹ Assumes 0.0374 AFY of savings per HET based on based on 2010 Smart Rebates program contract attachment provided by CUWCC, assuming a 25 year lifespan (40).				

The District provides in-house rebates for turf exchanges and smart controllers. In 2010, the District launched a pilot turf exchange program, which provides rebates for customers to replace lawn with low water use plants, permeable surfaces or synthetic turf. Commercial customers are eligible for up to \$1 per square foot of turf removed, up to \$5,000. The District also offers rebates for smart irrigation controllers of \$30 per station for commercial customers.

6.2.14 BMP 5 LANDSCAPE (DMM E)

According to Section A of the CUWCC MOU, implementation shall consist of at least the following actions (28):

Agencies shall provide non-residential customers with support and incentives to improve their landscape water use efficiency. Credit for prior activities, as reported through the BMP database, will be given for documented water savings achieved through 2008. This support shall include, but not be limited to, the following:

1) Accounts with Dedicated Irrigation Meters

a) Identify accounts with dedicated irrigation meters and assign ETo-based water use budgets equal to no more than an average of 70% of ETo (reference evapotranspiration) of annual average local ETo per square foot of landscape area in accordance with the schedule below.

Recreational areas (portions of parks, playgrounds, sports fields, golf courses, or school yards in public and private projects where turf provides a playing surface or serves other high-use recreational purposes) and areas permanently and solely dedicated to edible plants, such as orchards and vegetable gardens, may require water in addition to the water use budget. (These areas will be referred to as “recreational” below.) The water agency must provide a statement designating those portions of the landscape to be used for such purposes and specifying any additional water needed above the water use budget, which may not exceed 100% of ETo on an annual basis.

If the California Model Water Efficient Landscape Ordinance is revised to reduce the water allowance, this BMP will be revised automatically to reflect that change.

b) Provide notices each billing cycle to accounts with water use budgets showing the relationship between the budget and actual consumption.

c) Offer site-specific technical assistance to reduce water use to those accounts that are 20% over budget in accordance with the schedule given in Section B; agencies may choose not to notify customers whose use is less than their water use budget.

2) Commercial/Industrial/Institutional (CII) Accounts without Meters or with Mixed-Use Meters

a) Develop and implement a strategy targeting and marketing large landscape water use surveys to commercial/industrial/institutional (CII) accounts with mixed-use meters.

b) In un-metered service areas, actively market landscape surveys to existing accounts with large landscapes, or accounts with landscapes which have been determined by the purveyor not to be water efficient.

3) Offer financial incentives to support 1) and 2) above.

The District has 1,614 dedicated irrigation meters, but does not currently have an irrigation rate schedule or assign ETo-based water budgets (38).

The District offers free large landscape (LL) audits to non-residential customers, including commercial, industrial and institutional customers. The District maintains a contract with WaterWise Consulting, Inc., to carry out the audits. LL audits are customized and include a detailed outdoor audit. After the audit, the customer is given a detailed report with analysis and recommendations, which includes a site-specific water budget and irrigation schedule. In 2010, the District completed 32 LL audits (29).

In 2011, the District is adding a new direct install program to the large landscape audit program. After an LL audit, the customer will receive recommendations and the District will directly install water-saving devices, including irrigation controllers.

Because the District's LL audits are customized, the water savings differs for each site. The total water savings reported for 2010 is the sum of the savings estimated for each of the audits. The average savings per audit was calculated based on the number of surveys performed and the total estimated savings from all the audits.

The District plans to continue implementation of this BMP, as shown in Table 70.

Table 69. Actual LL Audits

Actual	2006	2007	2008	2009	2010
Number of surveys completed	-	33	-	-	32
Number of budgets developed	-	33	-	-	32
Number of follow-up visits	-	-	-	-	-
Actual water savings – AFY ¹	-	116.82	-	-	113.28

¹ Assumes average savings of 3.54 AFY per audit based on average savings per audit in 2010, as reported in California American Water's 2010 Conservation Report to the CPUC (29).

Table 70. Planned LL Audits

Planned	2011	2012	2013	2014
Number of surveys planned	20	40	40	40
Number of budgets planned	20	40	40	40
Number of follow-up visits	-	-	-	-
Projected water savings - AFY	70.8	141.6	141.6	141.6

¹ Assumes average savings of 3.54 AFY per audit based on average savings per audit in 2010, as reported in California American Water's 2010 Conservation Report to the CPUC (29).

In addition to LL audits, the District provides turf exchange rebates and smart controller rebates. In 2010, the District launched a pilot turf exchange program, which provides rebates for customers to replace lawn with low water use plants, permeable surfaces or synthetic turf. Commercial customers are eligible for up to \$1 per square foot of turf removed, up to \$5,000. The District also offers rebates for smart irrigation controllers of \$30 per station for commercial customers.

6.3 BMPS NOT IMPLEMENTED OR NOT SCHEDULED TO BE IMPLEMENTED

Currently BMP 1.1.3 is not being implemented and is not scheduled to be implemented. This BMP is not implemented or scheduled for implementation because it is not applicable to the District as a retail agency.

7 CLIMATE CHANGE

California's Global Warming Solutions Act of 2006 (AB 32) recognized climate change as a "serious threat to the economic well-being, public health, natural resources, and the environment of California" (44). Potential adverse impacts listed include sea level rise and reduced quality and supply of water from the Sierra snowpack (44). Following the passing of AB 32, city and county general plans, California Environmental Quality Act (CEQA) documents, and Integrated Regional Water Management Plans (IRWMPs) must consider climate change. The 2006 American River Basin IRWMP, which encompasses the Sacramento District's nine service areas, does not address climate change (45). An IRWMP update is planned and has received grant funding from DWR (46). The updated IRWMP will include a climate change analysis (47).

The 2010 UWMP Act and 2010 UWMP Guidebook do not require climate change considerations in UWMPs, but do recommend considering IRWMP climate change objectives in the UWMP if applicable and available (48). Because the current American River Basin IRWMP does not address climate change, the IRWMP cannot be used as a source for this section of the UWMP at this time. When the IRWMP climate change analysis is complete, this UWMP should be updated.

Recognizing that the impact of climate change on urban water systems is uncertain but potentially significant, mitigation and adaptation strategies are presented here to move towards reducing climate change impacts on California American Water's Sacramento District.

7.1 MITIGATION

In the water sector, reducing energy use is the primary way to mitigate climate change (1). This includes energy efficiency, renewable energy generation, and water conservation. Energy is required to move, treat, use, and discharge water; thus, decreasing water use leads to a reduction in overall energy use.

An estimate of the greenhouse gas (GHG) emissions resulting from electricity use for pumping and treating water is carried out in section 7.1.1 to illustrate potential GHG reduction strategies. The GHG analysis is provided for illustrative purposes and is not comprehensive. The analysis provides an estimate of the GHGs emitted in 2010 as a result of treating and delivering water to the District's customers, but does not include GHGs associated with treating and discharging wastewater, the fuel use of the vehicle fleet, or the energy use of other District facilities and buildings. For the Sacramento District, the analysis focuses on the GHGs associated with electricity use by the District to distribute water to customers, termed physical energy. A discussion of the GHGs associated with the electricity used by other agencies to treat and deliver water to the District, termed the embedded energy, is included (49).

- (1) **Physical Energy:** To determine the GHGs associated with the physical energy use, the quantity of electricity (kWh) currently used by the District and the corresponding emission factor for that electricity (lbs CO₂/kWh) must be obtained.

- (2) **Embedded Energy:** Estimating the GHGs associated with the embedded energy of the imported water involves determining the amount of energy (kWh/AF) used to move water from its original source to the District's system, as well as the amount of energy used by other agencies to treat the water. The source of electricity at each location of energy input (e.g. pump station) determines the emissions factor of the electricity that was consumed at that location (lbs CO₂/kWh). The sum of the GHG emissions associated with each location where electricity was consumed yields the total GHG emissions associated with the embedded energy in the water.

The sum of the GHGs associated with the physical energy use and the embedded energy in the water gives a reasonable estimate of the District's GHG emissions associated with pumping and treatment energy. Implementing energy efficiency, renewable energy generation, and/or water conservation has the potential to decrease GHG emissions in the future.

7.1.1 GHG Estimate

Estimating the physical energy use in the Sacramento District requires understanding where energy is being used in each of the service areas. Table 71 gives an overview of where and how energy is used in the Sacramento District, along with where purchased water is delivered.

All service areas in the Sacramento District, except West Placer, pump and deliver groundwater. Five tanks in the Sacramento District have booster stations: Cook Riolo (Antelope), Roseville Road (Lincoln Oaks), Mather (Suburban Rosemont), Jackson Highway (Suburban Rosemont), and Parksite (Parkway). In addition, Parkway has a booster station in the distribution system called A Parkway and Suburban Rosemont will have a new booster station in 2012.

Electricity in all service areas, except for Isleton, is provided by Sacramento Municipal Utility District (SMUD). Electricity in Isleton is provided by Pacific Gas and Electric Company (PG&E). Utility bill data for 2010 was obtained. The GHGs associated with energy used by the District to deliver water in 2010 was calculated using the emissions factor for the respective electric utility in each service area. The SMUD emissions factor was assumed to be 0.590 lbs CO₂/kWh, based on SMUD's 2009 delivered electricity emissions intensity reported to the California Climate Action Registry (50). (The 2010 report was not yet available). The PG&E emissions factor was assumed to be 0.559 lbs CO₂/kWh, based on PG&E's estimated emissions factor for delivered electricity in 2010 (51). The District's physical energy usage in 2010 was estimated to account for approximately 5,700 tons CO₂, and is distributed among service areas as shown in Figure 31.

Table 71. Energy uses in the Sacramento District

Service Area	Physical Energy			Embedded Energy
	Well Pumps ¹ (Groundwater)	Booster Pumps in Distribution System ¹	Booster Pumps at Tanks ¹	Purchased Water
Antelope	x		x	x
Arden	x			x
Isleton	x			
Lincoln Oaks	x		x	
Parkway	x	x	x	x
Security Park	x			
Suburban Rosemont	x	p	x	
Walnut Grove	x			
West Placer				x

¹ Note: x= existing, p=planned

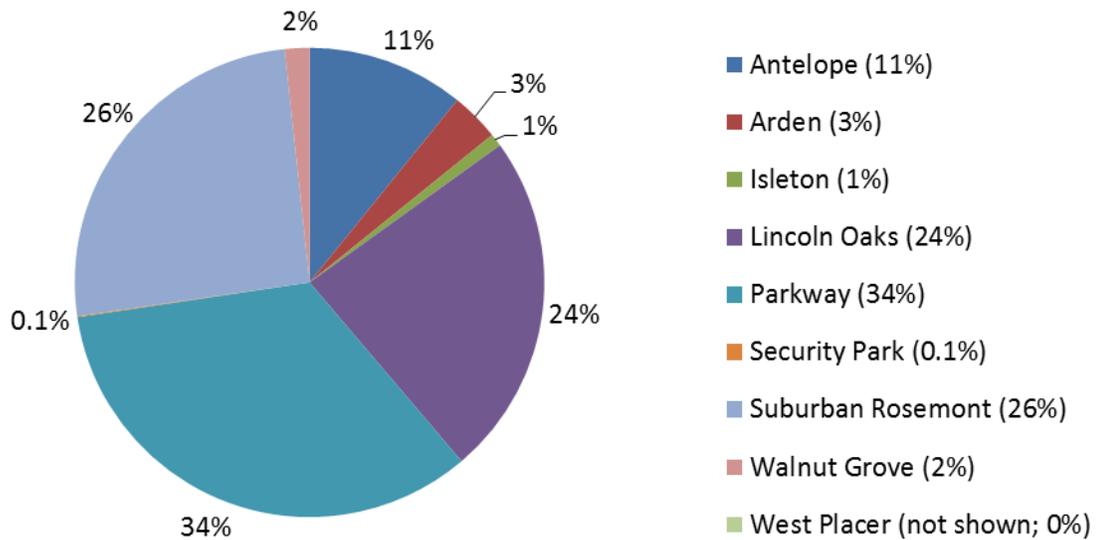


Figure 31. 2010 District GHGs Associated with Physical Energy Use

In addition to physical energy use, the water purchased by the Sacramento District has embedded energy. This energy is used by other water agencies to obtain, treat, and deliver the water to the Sacramento District. As shown in Table 71, purchased water is delivered to the Antelope, Lincoln Oaks, Parkway, and West Placer service areas. In 2010, purchased water accounted for about 8% of total production in the District. The West Placer service area is discussed here to illustrate the concept of embedded energy. As shown in Figure 31, the District does not consume any energy to deliver water to the West Placer service area. This is because the water arrives from PCWA at sufficient pressure. The agencies that take part in treating the water and delivering the water to the District, however, consume energy; this is the embedded energy. In the West Placer service area, water is purchased from PCWA. During 11 months of the year, PCWA purchases water from PG&E and treats it before delivering the water to the District. During PG&E's annual outage in the fall (10/15-11/15), PCWA pumps water from the American River, treats the water, and delivers it to the District (52).

In both cases, PCWA treats the water at either the Foothill WTP or the Sunset WTP, which have an average energy intensity of 32 kWh/AF and 78 kWh/AF, respectively, based on 2006-2007 data (52). Assuming 87% of the water is treated at the Foothill WTP and 13% is treated at the Sunset WTP (percentages based on capacity of plants), the average energy use for treatment is assumed to be 38 kWh/AF.

During the PG&E outage, PCWA uses both the American River Pump Station and the Auburn Tunnel Pump Station to deliver water to the District, which have an average energy intensity of 270 kWh/AF and 462 kWh/AF, respectively, based on 2006-2007 data (52). This adds a total of 732 kWh/AF of energy use during this one month period.

In 2010, approximately 860 AF of water was purchased from PCWA by the District for use in the West Placer service area. Using 2010 monthly production records along with the energy intensities described above, the energy used by PCWA in 2010 to treat and deliver water to the service area was estimated to be 72,680 kWh. Using the SMUD emissions factor, this embedded energy is associated with approximately 21 tons CO₂. While this is insignificant compared to the emissions associated with the District's physical energy use described above, the emissions from embedded energy may grow in the future as sources of supply change. (Note that this analysis does not include the energy, if any, used by PG&E to deliver the water to PCWA.)

The analysis on embedded energy should be expanded in the future to include energy use from each of the agencies from whom the District purchased water, as data becomes available.

7.1.2 Looking Forward

As the District and the larger Sacramento region move towards conjunctive use and reducing groundwater pumping, the District will see a change in energy use patterns. A reduction in groundwater pumping will lead to a decrease in physical energy usage (the energy used directly by the District). The embedded energy of the District's supply will likely increase because more water is expected to be purchased from other water purveyors. The trend in overall GHGs associated with the water used in the District will depend on the energy intensity of future water sources compared to the energy intensity of the District's current water supply sources.

The District can mitigate potential increases in GHGs through a variety of strategies including water conservation, energy efficiency, and renewable energy generation.

- (1) Water Conservation: Water conservation achieved through SBx7-7 influences GHG emissions; less water use means less energy is required to deliver, treat and discharge water. A reduction in energy use leads to a decrease in GHGs (assuming the source of electricity remains constant).
- (2) Energy Efficiency: Improvements in energy efficiency allow the same amount of water to be delivered using less energy. Similar to (1) above, an overall decrease in energy use results in fewer GHGs (assuming the source of electricity remains constant).
- (3) Renewable Energy: Renewable energy is an important strategy to GHG reduction, as it involves changing the source of electricity. Increasing the amount of electricity that is generated from renewable resources decreases the overall emissions factor (lbs CO₂/kWh) of the electricity consumed. This leads to fewer GHGs emitted per unit of energy consumed. California's electric utilities, including SMUD and PG&E, are increasing generation from renewable resources. This push for renewable energy will inherently benefit the water sector, reducing GHGs associated with purchased electricity and creating opportunities for water agencies to develop renewable energy projects.

By implementing water conservation, energy efficiency, and renewable generation simultaneously, significant GHG reductions may be achieved.

7.2 ADAPTATION

While the exact effects of climate change are uncertain, climate change will undoubtedly impact the Sacramento District over the long term. For example, DWR expects that climate change will affect water demand, water supply and quality, sea level, and frequency of natural disasters statewide (48).

DWR recommends that water agencies throughout California consider many climate change effects when establishing long-term plans, as shown in Table 72 (48):

Table 72. Potential Effects of Climate Change on Water Systems Statewide (48)

Climate Change	Potential Effect on Water System
Hotter days and nights, longer irrigation season, increase in landscaping water needs, increased cooling water needs for power plants and industrial facilities	Increased water demand
Reduced snowpack, earlier spring runoff, increased potential for algal bloom	Reduced or compromised supply (lower water quality)
Sea level rise, more extreme tides	Compromised supply; Stress on levees near sea; increased potential for sea water intrusion
Increased frequency and severity of natural disasters (including droughts, floods, wildfires)	Larger variability in supply; Increased stress on infrastructure

In the California Water Plan Update 2009, DWR considered 12 different climate change scenarios to predict water demand changes for three growth scenarios (53). Each climate change scenario has separate estimates of future precipitation and temperature. When climate change is considered, all three growth scenarios showed higher annual water demands than under a repeat of historical climate (53).

7.2.1 Adaptive Management

The Sacramento District is fortunate to lie above a large groundwater basin. While this reduces supply risks associated with climate change, climate change has the potential to decrease recharge of the basin in the future. In addition, four service areas utilize purchased water from a variety of sources that may be impacted by climate change. These factors along with the uncertainty in future temperature and the District’s close proximity to the Delta, make it difficult to predict the impact of climate change on the Sacramento District. Dealing with uncertainties like these requires an approach that is both flexible and robust. The recommended method to adapt to climate change effects on water systems is adaptive management. While adaptive management has been used in traditional water supply planning (54), it is also capable of integrating climate change uncertainties into water system management. The goal of adaptive management is to, “embrace uncertainty, accepting partial understanding of processes, and producing policies and designs that are less sensitive to the unexpected” (54).

Adaptive management is a continuous cycle consisting of four steps: (1) plan, (2) act, (3) monitor, and (4) evaluate, as shown in Figure 32 (54).

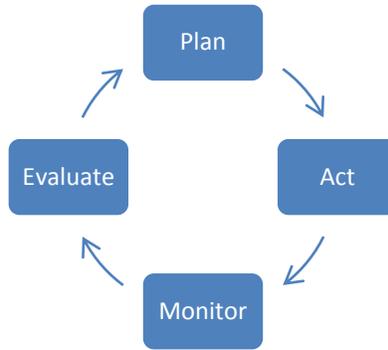


Figure 32. Adaptive Management Process

Evaluation results feed back into planning and the iteration process continues, yielding a closed-loop management process. This framework encourages future decisions that are based on actual results.

Table 73 shows three possible climate change effects that could impact the District and how the adaptive management process could be used to respond to them.

Table 73. Example Adaptive Management Scenarios for the Sacramento District

Example	Plan	Act	Monitor	Evaluate
Earlier Spring Runoff	Utilize surface water sources when plentiful, saving groundwater sources for summer/fall	Use surface water sources when plentiful	Monitor spring runoff and track availability of supply for different sources	Optimize use of supplies; Use results to plan for future years
Flood in Delta	Island flooding could cause release of water from Folsom Lake to combat sea water intrusion in Delta, which results in less storage upstream; Identify other sources of supply, including water transfers	Maximize groundwater storage; actively manage sources of supply; consider additional interconnections and water transfers within the Sacramento region	Evaluate feasibility, reliability and cost-effectiveness of supply strategies	Determine whether additional storage and/or long-term agreements for water transfers are feasible and reliable; Use results to plan for future floods

Example	Plan	Act	Monitor	Evaluate
Increased Temperature & Demand	Identify and predict periods of increased temperature; Develop potential alternatives to increase supply and/or decrease demand	Implement potential alternatives (e.g. implement water conservation programs, secure other sources of supply)	Collect data on success of water conservation programs; Monitor cost-effectiveness of chosen alternative supplies	Determine if increased demand was caused by increased temperatures or other factors; Use results to plan for future periods of high temperature

As the Sacramento District encounters climate change impacts, employing the adaptive management process allows the District to manage these impacts on a continuous basis by evaluating alternatives, testing hypotheses, determining causes, and incorporating results into planning.

8 REFERENCES

1. **California Department of Water Resources.** *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan* . March 2011.
2. —. *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use.* February 2011.
3. **Sacramento Water Forum.** Water Forum. [Online] [Cited: November 4, 2010.] <http://www.waterforum.org/about.cfm>.
4. **Sacramento Central Groundwater Authority.** *Central Sacramento County Groundwater Management Plan.* February 2006.
5. **Sacramento County Planning and Community Development.** *Sacramento County Housing Element 2008-2013.* December 2008.
6. **Sacramento Area Council of Governments.** Transportation Analysis Zones 2007.shp. *Sacramento Area Council of Governments Mapping Center Regional Clearing House.* [Online] <http://www.sacog.org/mapping/clearinghouse/>.
7. —. *2006 to 2013 Regional Housing Needs Plan.* February 21, 2008.
8. **HDR Engineering, Inc.** Sacramento District Meter Retrofit Program. 2003.
9. **California Department of Water Resources.** *California's Groundwater Bulletin 118 Update 2003.* October 2003.
10. **Regional Water Authority.** *American River Basin Integrated Regional Water Management Plan.* June 2006.
11. **Sacramento Groundwater Authority.** *Sacramento Groundwater Authority Groundwater Management Plan.* December 2008.
12. —. *Sacramento Groundwater Authority Groundwater Accounting Framework Phase III Effort.* June 10, 2010.
13. **Water, California American.** Wholesale Supply Agreement with the City of Sacramento. 2010.
14. **Carollo .** *City of Sacramento 2010 Urban Water Management Plan Administrative Draft.* June 2011.
15. **California American Water.** *Contract Between Placer County Water Agency and California-American Water Company for a Water Supply.* September 5, 2002.
16. **Brown and Caldwell.** *Placer County Water Agency Integrated Water Resources Plan.* August 2004.

17. **California American Water.** *Sacramento Suburban Water District Wholesale Water Supply Agreement with the California-American Water Company.* July 1, 2005.
18. **Brown and Caldwell.** *DRAFT Sacramento Suburban Water District 2010 Urban Water Management Plan.* June 2011.
19. **Sacramento Suburban Water District/ Brown and Caldwell.** *Sacramento Suburban Water District 2005 Urban Water Management Plan .* December 2005.
20. **Sacramento County Water Agency .** *Groundwater Management Plan.* August, 2004.
21. **Sacramento County Water Agency.** *Sacramento County Water Agency Zone 41 2005 Urban Water Management Plan.* December 2005.
22. **Brown and Caldwell.** *DRAFT Sacramento County Water Agency 2010 Zone 41 Urban Water Management Plan.* June 2011.
23. **Carollo Engineers.** *Sacramento Regional Wastewater Treatment Plant 2020 Master Plan.* November, 2001.
24. **Sacramento Regional County Sanitation District.** SRCSD Information Sheets. *srcsd.com.* [Online] [Cited: April 12, 2011.] <http://www.srcsd.com/pdf/infosheets2009.pdf>.
25. **Brown and Caldwell.** *City of Roseville 2005 Urban Water Management Plan.* March 2006.
26. **Sacramento County.** *Rio Del Oro Specific Plan Project Recirculated DEIR/Supplemental DEIS.* April 15, 2008.
27. **City of Sacramento Prepared by West Yost and Associates.** *City of Sacramento Urban Water Management Plan.* November 2006.
28. **California Urban Water Conservation Council.** *Memorandum of Understanding Regarding Urban Water Conservation in California.* June 9, 2010.
29. **California American Water.** *Water Conservation Program 2010 Annual Summary Report.* March 2011.
30. —. *Sacramento District 2010 BMP 1.2 Water Loss Control Report to CUWCC.* 2010.
31. **AWWA Water Software Results Provided by California American Water.** *Water Balance from AWWA Water Loss Control Committee Free Audit Software v 4.0.* March 2009 through February 2010.
32. **California American Water Sacramento District.** *2006 BMP Report to CUWCC.* 2006, Reported as of 6/1/10.
33. **California American Water.** *2007 CPUC Annual Report Schedule E-3, Description of Water Conservation Program, CAW District-Sacramento.* 2007.

34. —. Sacramento District 2009 BMP 1.3 Metering and Commodity Report to CUWCC. 2009.
35. —. Sacramento District 2010 BMP 1.3 Metering and Commodity Report to CUWCC. 2010.
36. —. Email from Shauntele James. Subject: 2010 Northern Division UWMP-Information Request. Dated October 8, 2010.
37. **California American Water Company.** 2009 Annual Report of District Water System Operations of California American Water Company Sacramento District To The Public Utilities Commission of the State of California. For the Year Ended December 31, 2009.
38. **California American Water.** Email correspondence from Patrick Pilz. Subject: Rough Drafts of BMP section for LA, Ventura, Sacramento & SD UWMPs. Dated June 22, 2011.
39. —. Sacramento District 2010 BMP 2.2 School Education Programs Report to CUWCC. 2010.
40. Spreadsheet Provided by California American Water, Filename: WaterSavings.CUWCC.2010Contract.Attachment.xls. June 10, 2011.
41. **Environmental Protection Agency.** WaterSense Specifications for Tank-Type Toilets. May 20, 2011. Version 1.1.
42. **Regional Water Authority.** Residential & Commercial Toilet Rebate Program Brochure. [Online] [Cited: June 16, 2011.] <http://www.rwah2o.org/rwa/files/toolkit/For%20the%20Home/Toilet%20Rebate-final.pdf>.
43. **CUWCC.** Smart Rebates, Commercial Fixture/Appliance Descriptions. [Online] [Cited: June 17, 2011.]
44. California Assembly Bill No. 32. 2006. Chapter 488.
45. American River Basin Integrated Regional Water Management Plan. June 2006.
46. **Department of Water Resources.** Integrated Regional Water Management Grants. [Online] [Cited: April 13, 2011.] http://www.water.ca.gov/irwm/integregio_planning.cfm.
47. **Regional Water Authority.** Proposal for American River Basin IRWMP Update. *ARB IRWMP Prop 84 Planning Grant*. September 28, 2010.
48. **California Department of Water Resources.** *Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan Draft*. March 2011.
49. **GEI Consultants, Inc./Navigant Consulting, Inc.** *Embedded Energy in Water Studies, Study 1: Statewide and Regional Water-Energy Relationship*. s.l. : California Public Utilities Commission, 2010. CALMAC Study ID CPU0035.01.
50. **Sacramento Municipal Utility District.** Annual Emissions Report. s.l. : California Climate Action Registry, 2009.

51. **Bruso, Xantha.** Greenhouse Gas Emissions Factors Info Sheet. s.l. : Pacific Gas and Electric Company, April 8, 2011.
52. **Email correspondence with Heather Trejo from Placer County Water Agency.** Re: Energy used by PCWA to treat and deliver water to CalAm. Written June 7, 2011.
53. Chapter 5- Managing an Uncertain Future. *California Water Plan Update 2009.* s.l. : California Department of Water Resources, 2009. Bulletin 160-09.
54. **Skaggs, Richard L, Vail, Lance W and Shankle, Steve.** Adaptive Management for Water Supply Planning: Sustaining Mexico City's Water Supply. [book auth.] Larry W Mays. *Urban Water Supply Handbook.* New York : McGraw-Hill, 2002.
55. **California American Water.** *California American Water Security Park System Comprehensive Planning Study.* 2008.
56. **Western Regional Climate Center.** Western COOP Station Map. [Online] 2010. [Cited: October 10, 2010.] <http://www.wrcc.dri.edu/coopmap/> .
57. **California American Water in Conjunction with Hatch Mott MacDonald.** *California American Water Sacramento District Source of Supply Study 2008.* 2008.
58. **Sacramento Regional County Sanitation District .** *Interceptor System Master Plan Draft Report Volume I.* 2000.
59. **Water, California American.** Purveyor Specific Agreement with the City of Sacramento. 2010.
60. **GEI Consultatns, Inc./Navigant Consulting, Inc.** *Embedded Energy in Water Studies, Study 2: Water Agency and Function Component Study and Energy Water Load Profiles.* s.l. : California Public Utilities Commission, 2010. CALMAC Study ID CPU0050.

APPENDIX A. ANTELOPE SERVICE AREA

Antelope is located in the North Area Basin as described in section 4.2.3. The SGA is the management agency for the North Area Basin, and the SGAGMP is attached as Appendix P.

The North Area Basin is not adjudicated and California American Water exercises an appropriate pumping right for Antelope. However, California American Water is a member of the SGA, and is voluntarily limiting pumping to its estimated percentage of the safe yield outlined in the SGA WAF. The sustainable pumping estimate for California American Water is 17,995 afy (12). California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, and by reducing consumption through meter retrofits of unmetered connections, and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Antelope	32,929	34,074	35,848	36,949	37,476	38,011

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,861	1,165	8,119	5,083	6,248
Multi-family	63	40	8	5	45
Commercial	148	92	19	12	104
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	2,072	1,297	8,146	5,100	6,397

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	9,888	4,464	0	0	4,464
Multi-family	145	65	0	0	65
Commercial	52	23	0	0	23
Industrial	0	0	0	0	0
Institutional/ governmental	86	39	0	0	39
Landscape	20	9	0	0	9
Agriculture	0	0	0	0	0
Other	0	0	33	15	15
Total	10,191	4,601	33	15	4,616

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	10,403	5,623	0	0	5,623
Multi-family	153	82	0	0	82
Commercial	55	30	0	0	30
Industrial	0	0	0	0	0
Institutional/ governmental	90	49	0	0	49
Landscape	21	11	0	0	11
Agriculture	0	0	0	0	0
Other	35	19	0	0	19
Total	10,756	5,814	0	0	5,814

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	10,722	5,542	0	0	5,542
Multi-family	157	81	0	0	81
Commercial	56	29	0	0	29
Industrial	0	0	0	0	0
Institutional/ governmental	93	48	0	0	48
Landscape	22	11	0	0	11
Agriculture	0	0	0	0	0
Other	36	18	0	0	18
Total	11,087	5,731	0	0	5,731

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	10,875	5,622	11,030	5,702
Multi-family	159	82	162	84
Commercial	57	30	58	30
Industrial	0	0	0	0
Institutional/ governmental	95	49	96	50
Landscape	22	11	22	12
Agriculture	0	0	0	0
Other	36	19	37	19
Total	11,245	5,813	11,405	5,896

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	12.67	12.67	12.67	12.67
Multi-family residential	0.56	0.56	0.56	0.56
Total	13	13	13	13

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	664	485	610	602	610	619
Total	664	485	610	602	610	619

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	6,397	4,616	5,814	5,731	5,813	5,896
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	664	485	610	602	610	619
Total	7,061	5,100	6,425	6,332	6,423	6,514

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
Sacramento Suburban Water District ¹	1,061	1,200	1,200	1,200	1,200

¹ The SSWD supply is assumed to be distributed as follows based on Californ

SSWD Normal Year Supplies

Water Supply Sources	Wholesaler	2010	2015	2020	2025	2030	2035
Wholesaler - USBR (215)	Yes	1,000	1,000	1,000	1,000	1,000	1,000
Wholesaler - PCWA	Yes	29,000	29,000	29,000	12,000	12,000	12,000
Wholesaler - City of Sacramento	Yes	9,300	9,300	9,300	9,300	9,300	9,300
Supplier-produced groundwater	No	31,241	31,241	31,241	31,241	31,241	31,241
Supplier-produced surface water	No	-	-	-	-	-	-
Transfers in	No	-	-	-	-	-	-
Exchanges in	No	-	-	-	-	-	-
Recycled water	No	-	-	-	-	-	-
Desalination water	No	-	-	-	-	-	-
Total		70,541	70,541	70,541	53,541	53,541	53,541

¹ Source: Table Adapted from SSWD 2010 UWMP Table 4-6.

SSWD Supply Reliability

Average / Normal Water Demand	Dry Water	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
2,481,642	349,060	879,785	853,093	2,247,425	1,117,786
Average/normal year	14%	35%	34%	91%	45%

¹ Source: SSWD 2010 UWMP.

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Sacramento Suburban Water District	1,061	1,200	1,200	1,200	1,200
North Area Groundwater Basin	4,039	5,225	5,132	5,223	5,314
Total	5,100	6,425	6,332	6,423	6,514

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
North Area Basin	6,892	6,369	5,461	5,311	4,039
Groundwater as a percent of total water supply	91%	97%	84%	93%	79%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
North Area Basin	5,225	5,132	5,223	5,314
Percent of total water supply	81%	81%	81%	82%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater		2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area		5,090	5,267	5,541	5,712	5,793	5,876
Volume that meets recycled water standard		0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	5,090	5,267	5,541	5,712	5,793	5,876
Total			5,267	5,541	5,712	5,793	5,876

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
North Area Basin				
Sacramento Suburban Water Dis	X	X		X

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
North Area Basin	100%	4,853	5,095	5,343
Sacramento Suburban Water Dis	100%	0	0	0
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		1975	1976	1977
2009	1976	100%	100%	100%
North Area Basin		100%	100%	100%
Sacramento Suburban Water District		0%	0%	0%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	6,425	6,332	6,423	6,514
Demand totals (From Table	6,425	6,332	6,423	6,514
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	6,425	6,332	6,423	6,514
Demand totals	6,425	6,332	6,423	6,514
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

SSWD Supply Reliability

Sources	Normal Water Year	Single Dry Water Year Supply	Multiple Dry Water Year Supply		
			Year 2011	Year 2012	Year 2013
Wholesaler -	1,000	0	0	0	0
Wholesaler -	29,000	0	0	0	0
Wholesaler -	9,399	0	3,500	3,500	3,500
Supplier-produced	31,241	43,067	43,067	43,067	43,067
Supplier-produced	0	0	0	0	0
Transfers in	0	0	0	0	0
Exchanges in	0	0	0	0	0
Recycled water	0	0	0	0	0
Desalination water	0	0	0	0	0
TOTAL	70,640	43,067	46,567	46,567	46,567
Percent of Normal	100%	61%	66%	66%	66%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	6,425	6,332	6,423	6,514
	Demand totals	6,425	6,332	6,423	6,514
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	6,425	6,332	6,423	6,514
	Demand totals	6,425	6,332	6,423	6,514
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	6,425	6,332	6,423	6,514
	Demand totals	6,425	6,332	6,423	6,514
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX B. ARDEN SERVICE AREA

Arden is located in the North Area Basin as described in Section 4.2.3 The SGA is the management agency for the North Area Basin, and the SGAGMP is attached as Appendix P.

The North Area Basin is not adjudicated and California American Water exercises an appropriate pumping right for Arden. However, California American Water is a signatory to the WFA, and is voluntarily limiting pumping to its estimated percentage of the safe yield outlined in the SGA WAF. The sustainable pumping estimate for California American Water is 17,995 afy (12). California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, and by reducing consumption through meter retrofits of unmetered connections, and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Arden	7,738	7,735	7,861	7,964	8,225	8,495

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	75	105	596	833	937
Multi-family	156	218	48	67	286
Commercial	365	509	113	157	667
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	596	833	757	1,057	1,890

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	633	710	0	0	710
Multi-family	318	357	0	0	357
Commercial	233	261	0	0	261
Industrial	0	0	0	0	0
Institutional/ governmental	9	10	0	0	10
Landscape	6	7	0	0	7
Agriculture	0	0	0	0	0
Other	0	0	102	114	114
Total	1,199	1,345	102	114	1,460

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	643	756	0	0	756
Multi-family	323	380	0	0	380
Commercial	237	278	0	0	278
Industrial	0	0	0	0	0
Institutional/ governmental	9	11	0	0	11
Landscape	6	7	0	0	7
Agriculture	0	0	0	0	0
Other	104	122	0	0	122
Total	1,322	1,554	0	0	1,554

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	652	711	0	0	711
Multi-family	327	357	0	0	357
Commercial	240	262	0	0	262
Industrial	0	0	0	0	0
Institutional/ governmental	9	10	0	0	10
Landscape	6	7	0	0	7
Agriculture	0	0	0	0	0
Other	105	115	0	0	115
Total	1,340	1,461	0	0	1,461

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	673	734	695	758
Multi-family	338	369	349	381
Commercial	248	270	256	279
Industrial	0	0	0	0
Institutional/ governmental	10	10	10	11
Landscape	6	7	7	7
Agriculture	0	0	0	0
Other	108	118	112	122
Total	1,383	1,509	1,429	1,559

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	2.35	2.35	2.35	2.35
Multi-family residential	0.10	0.10	0.10	0.10
Total	2	2	2	2

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	196	153	163	153	158	164
Total	196	153	163	153	158	164

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	1,890	1,460	1,554	1,461	1,509	1,559
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	196	153	163	153	158	164
Total	2,086	1,613	1,717	1,615	1,668	1,722

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento ¹	0	725	773	580	483

¹ The firm capacity City of Sacramento supply of 2,578 afy is distributed between

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Wholesaler sources ¹	2010	2015	2020	2025	2030
Surface Water					
Sacramento	81,800	81,800	81,800	81,800	81,800
American Ri	145,700	170,200	196,200	222,200	245,000
Groundwater	33,600	33,600	33,600	33,600	33,600
Total	261,100	285,600	311,600	337,600	360,400

¹ Source: City of Sacramento 2005 UWMP Table 5-5

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
City of Sacramento	0	725	773	580	483
North Area Groundwater Basin	1,613	992	842	1,088	1,239
Total	1,613	1,717	1,615	1,668	1,722

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
North Area Basin	2,019	1,802	1,954	1,747	1,613
Groundwater as a percent of total water supply	100%	100%	100%	100%	100%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
North Area Basin	992	842	1,088	1,239
Percent of total water supply	58%	52%	65%	72%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	1,196	1,196	1,215	1,231	1,271	1,313
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	1,196	1,196	1,215	1,231	1,271	1,313
Total		1,196	1,196	1,215	1,231	1,271	1,313

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
North Area Basin				
City of Sacramento	X	X		X

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
North Area Basin	100%	1,481	1,503	1,526
City of Sacramento ¹	100%	387	387	387
Percent of normal year:	100%	100%	100%	100%

¹The multiple dry years are based on the multiple dry years conditions (1933, 1934, 1977) applied to 2006, 2007, and 2008 supply projections in Table 5-6 of the City of Sacramento 2005 UWMP (12). However, the City of Sacramento supply is not expected to be available until 2015.

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		1975	1976	1977
2009	1976	100%	100%	100%
North Area Basin	100%	100%	100%	100%
City of Sacramento ¹	100%	100%	100%	100%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	1,717	1,615	1,668	1,722
Demand totals (From Table	1,717	1,615	1,668	1,722
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	1,717	1,615	1,668	1,722
Demand totals	1,717	1,615	1,668	1,722
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	1,717	1,615	1,668	1,722
	Demand totals	1,717	1,615	1,668	1,722
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	1,717	1,615	1,668	1,722
	Demand totals	1,717	1,615	1,668	1,722
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	1,717	1,615	1,668	1,722
	Demand totals	1,717	1,615	1,668	1,722
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX C. ISLETON SERVICE AREA

Isleton is located on the Solano Subbasin. There is currently no management agency with a groundwater management plan for the Solano Subbasin.

The Solano Subbasin is not adjudicated and California American Water exercises an appropriate pumping right for Isleton.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Isleton	807	799	913	1,034	1,071	1,109

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	299	149	0	0	149
Multi-family	24	12	0	0	12
Commercial	56	28	0	0	28
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	379	189	0	0	189

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	264	97	0	0	97
Multi-family	14	5	0	0	5
Commercial	56	20	0	0	20
Industrial	0	0	0	0	0
Institutional/ governmental	17	6	0	0	6
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	1	0	0
Total	351	128	1	0	129

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	302	132	0	0	132
Multi-family	16	7	0	0	7
Commercial	64	28	0	0	28
Industrial	0	0	0	0	0
Institutional/ governmental	19	8	0	0	8
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	1	0	0	0	0
Total	402	176	0	0	176

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	342	141	0	0	141
Multi-family	18	8	0	0	8
Commercial	72	30	0	0	30
Industrial	0	0	0	0	0
Institutional/ governmental	22	9	0	0	9
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	1	1	0	0	1
Total	456	189	0	0	189

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	354	147	367	152
Multi-family	19	8	19	8
Commercial	75	31	78	32
Industrial	0	0	0	0
Institutional/ governmental	23	9	24	10
Landscape	0	0	0	0
Agriculture	0	0	0	0
Other	1	1	1	1
Total	472	195	489	202

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	0.41	0.41	0.41	0.41
Multi-family residential	0.02	0.02	0.02	0.02
Total	0.43	0.43	0.43	0.43

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	20	14	18	20	21	21
Total	20	14	18	20	21	21

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	189	129	176	189	195	202
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	20	14	18	20	21	21
Total	208	142	194	208	216	224

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Solano Subbasin	142	194	208	216	224
Total	142	194	208	216	224

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Solano Subbasin	179	182	216	159	142
Groundwater as a percent of total water supply	100%	100%	100%	100%	100%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Solano Subbasin	194	208	216	224
Percent of total water supply	100%	100%	100%	100%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	125	123	141	160	166	171
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Percolation	Secondary effluent	125	123	141	160	166	171
Total			123	141	160	166	171

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Solano Subbasin				

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Solano Subbasin	100%	136	144	153
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
2009	1976	1975	1976	1977
Solano Subbasin	100%	100%	100%	100%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	194	208	216	224
Demand totals (From Table	194	208	216	224
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	194	208	216	224
Demand totals	194	208	216	224
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	194	208	216	224
	Demand totals	194	208	216	224
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	194	208	216	224
	Demand totals	194	208	216	224
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	194	208	216	224
	Demand totals	194	208	216	224
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX D. LINCOLN OAKS SERVICE AREA

Lincoln Oaks is located in the North Area Basin as described in section 4.2.3. The SGA is the management agency for the North Area Basin, and the SGAGMP is attached as Appendix P.

The North Area Basin is not adjudicated and California American Water exercises an appropriate pumping right for Lincoln Oaks. However, California American Water is a member of the SGA, and is voluntarily limiting pumping to its estimated percentage of the safe yield outlined in the SGA WAF. The sustainable pumping estimate for California American Water is 17,995 afy (12). California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, and by reducing consumption through meter retrofits of unmetered connections, and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Lincoln Oaks	42,764	42,854	43,319	43,999	44,439	44,884

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	843	424	12,649	6,360	6,784
Multi-family	870	437	134	67	505
Commercial	2,030	1,021	312	157	1,178
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	3,743	1,882	13,095	6,584	8,466

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	2,363	1,238	10,646	5,575	6,813
Multi-family	575	301	0	0	301
Commercial	353	185	0	0	185
Industrial	0	0	0	0	0
Institutional/ governmental	10	5	0	0	5
Landscape	77	40	0	0	40
Agriculture	0	0	0	0	0
Other	3	2	95	50	51
Total	3,381	1,771	10,741	5,625	7,396

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

Water use sectors	2015				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	13,150	8,536	0	0	8,536
Multi-family	581	377	0	0	377
Commercial	357	232	0	0	232
Industrial	0	0	0	0	0
Institutional/ governmental	10	7	0	0	7
Landscape	78	51	0	0	51
Agriculture	0	0	0	0	0
Other	99	64	0	0	64
Total	14,275	9,266	0	0	9,266

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

Water use sectors	2020				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	13,356	7,396	0	0	7,396
Multi-family	590	327	0	0	327
Commercial	362	201	0	0	201
Industrial	0	0	0	0	0
Institutional/ governmental	10	6	0	0	6
Landscape	79	44	0	0	44
Agriculture	0	0	0	0	0
Other	101	56	0	0	56
Total	14,499	8,029	0	0	8,029

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

Water use sectors	2025		2030	
	Metered		Metered	
	# of Accounts	Volume	# of Accounts	Volume
Single family	13,490	7,470	13,625	7,545
Multi-family	596	330	602	333
Commercial	366	203	370	205
Industrial	0	0	0	0
Institutional/ governmental	10	6	10	6
Landscape	80	44	81	45
Agriculture	0	0	0	0
Other	102	56	103	57
Total	14,644	8,109	14,791	8,190

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	6.45	6.45	6.45	6.45
Multi-family residential	0.28	0.28	0.28	0.28
Total	7	7	7	7

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	878	776	973	843	851	860
Total	878	776	973	843	851	860

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	8,466	7,396	9,266	8,029	8,109	8,190
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	878	776	973	843	851	860
Total	9,345	8,172	10,239	8,871	8,960	9,050

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
Sacramento Suburban Water District ¹	515	800	800	800	800

¹ The SSWD supply is assumed to be distributed as follows based on California

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Water Supply Sources	Wholesaler	2010	2015	2020	2025	2030	2035
Wholesaler - USBR (215)	Yes	1,000	1,000	1,000	1,000	1,000	1,000
Wholesaler - PCWA	Yes	29,000	29,000	29,000	12,000	12,000	12,000
Wholesaler - City of Sacramento	Yes	9,300	9,300	9,300	9,300	9,300	9,300
Supplier-produced groundwater	No	31,241	31,241	31,241	31,241	31,241	31,241
Supplier-produced surface water	No	-	-	-	-	-	-
Transfers in	No	-	-	-	-	-	-
Exchanges in	No	-	-	-	-	-	-
Recycled water	No	-	-	-	-	-	-
Desalination water	No	-	-	-	-	-	-
Total		70,541	70,541	70,541	53,541	53,541	53,541

¹ Source: Table Adapted from SSWD 2010 UWMP Table 4-6.

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Sacramento Suburban Water District	515	800	800	800	800
North Area Groundwater Basin	7,657	9,439	8,071	8,160	8,250
Total	8,172	10,239	8,871	8,960	9,050

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
North Area Basin	9,060	9,496	11,826	12,180	7,657
Groundwater as a percent of total water supply	96%	98%	97%	98%	94%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
North Area Basin	9,439	8,071	8,160	8,250
Percent of total water supply	92%	91%	91%	91%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	6,610	6,624	6,696	6,801	6,869	6,938
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	6,610	6,624	6,696	6,801	6,869	6,938
Total			6,624	6,696	6,801	6,869	6,938

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
North Area Basin				
Sacramento Suburban Water District	X	X		X

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
North Area Basin	100%	7,758	8,121	8,484
Sacramento Suburban Water District	100%	0	0	0
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		1975	1976	1977
2009	1976			
North Area Basin	100%	100%	100%	100%
Sacramento Suburban Water District	0%	0%	0%	0%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	10,239	8,871	8,960	9,050
Demand totals (From Table	10,239	8,871	8,960	9,050
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	10,239	8,871	8,960	9,050
Demand totals	10,239	8,871	8,960	9,050
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	10,239	8,871	8,960	9,050
Demand totals	10,239	8,871	8,960	9,050
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	10,239	8,871	8,960	9,050
	Demand totals	10,239	8,871	8,960	9,050
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	10,239	8,871	8,960	9,050
	Demand totals	10,239	8,871	8,960	9,050
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	10,239	8,871	8,960	9,050
	Demand totals	10,239	8,871	8,960	9,050
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX E. PARKWAY SERVICE AREA

Parkway is located in the Central Basin as described in section 4.2.4. The SCGA is the management agency for the Central Basin; the CSCGMP is attached in Appendix Q. Parkway receives wholesale surface water from the City of Sacramento (City). The wholesale City supply and supply reliability are described in more detail in section 5.1.1.

The Central Basin is not adjudicated and California American Water exercises an appropriative right for Parkway as described in section 4.2.6. California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, meter retrofits of unmetered connections, and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Parkway	52,912	54,417	55,214	55,977	57,893	59,874

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,332	1,019	11,760	8,994	10,013
Multi-family	286	219	151	115	334
Commercial	667	510	352	269	780
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	2,285	1,748	12,263	9,379	11,127

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	4,098	2,749	8,583	5,757	8,505
Multi-family	563	378	0	0	378
Commercial	465	312	0	0	312
Industrial	2	1	0	0	1
Institutional/ governmental	68	46	0	0	46
Landscape	125	84	0	0	84
Agriculture	0	0	0	0	0
Other	3	2	270	181	183
Total	5,324	3,571	8,853	5,938	9,509

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	12,867	9,763	0	0	9,763
Multi-family	571	433	0	0	433
Commercial	472	358	0	0	358
Industrial	2	2	0	0	2
Institutional/ governmental	69	52	0	0	52
Landscape	127	96	0	0	96
Agriculture	0	0	0	0	0
Other	277	210	0	0	210
Total	14,385	10,915	0	0	10,915

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	13,044	8,883	0	0	8,883
Multi-family	579	394	0	0	394
Commercial	478	326	0	0	326
Industrial	2	1	0	0	1
Institutional/ governmental	70	48	0	0	48
Landscape	129	88	0	0	88
Agriculture	0	0	0	0	0
Other	281	191	0	0	191
Total	14,583	9,930	0	0	9,930

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	13,491	9,187	13,953	9,501
Multi-family	599	408	619	422
Commercial	495	337	512	348
Industrial	2	1	2	1
Institutional/ governmental	72	49	75	51
Landscape	133	91	138	94
Agriculture	0	0	0	0
Other	290	198	300	205
Total	15,082	10,270	15,599	10,622

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	18.18	18.18	18.18	18.18
Multi-family residential	0.80	0.80	0.80	0.80
Total	19	19	19	19

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	1,154	998	1,146	1,042	1,078	1,115
Total	1,154	998	1,146	1,042	1,078	1,115

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	11,127	9,509	10,915	9,930	10,270	10,622
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	1,154	998	1,146	1,042	1,078	1,115
Total	12,281	10,507	12,060	10,973	11,348	11,737

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento ¹	1,069	2,416	2,029	2,126	2,174

1 The firm capacity City of Sacramento supply of 2,578 afy is distributed betw

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Water purchased from	2010	2015	2020	2025	2030	2035
Supplier-Produced	18,377	22,300	22,300	22,300	22,300	22,300
Supplier-Produced S	94,990	142,735	149,652	166,869	182,762	195,062
Transfers In	0	0	0	0	0	0
Exchanges In	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Desalinated Water	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	113,367	165,035	171,952	189,169	205,062	217,362

¹ Source: City of Sacramento 2010 Urban Water Management Plan Administrative Draft

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
City of Sacramento	1,069	2,416	2,029	2,126	2,174
Central Basin	9,437	9,645	8,944	9,223	9,563
Total	10,507	12,060	10,973	11,348	11,737

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Central Basin	10,435	9,824	11,167	10,775	9,437
Groundwater as a percent of total water supply	85%	84%	87%	95%	90%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Central Basin	9,645	8,944	9,223	9,563
Percent of total water supply	80%	82%	81%	81%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	8,179	8,412	8,535	8,653	8,949	9,255
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	8,179	8,412	8,535	8,653	8,949	9,255
Total			8,412	8,535	8,653	8,949	9,255

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Central Basin				
City of Sacramento	X	X		X

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Central Basin	100%	9,805	10,104	10,406
City of Sacramento ¹	100%	0	0	0
Percent of normal year:	100%	100%	100%	100%

The multiple dry years are based on the multiple dry years conditions (1933, 1934, 1977) applied to 2006, 2007, and 2008 supply projections in Table 5-6 of the City of Sacramento 2005 UWMP (12). However, the City of Sacramento supply is not expected to be available until 2015.

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
2009	1976	1975	1976	1977
Central Basin	100%	100%	100%	100%
City of Sacramento ¹	100%	100%	100%	100%

¹The multiple dry years are based on the multiple dry years conditions (1933, 1934, 1977) applied to 2006, 2007, and 2008 supply projections in Table 5-6 of the City of Sacramento 2005 UWMP (12).

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	12,060	10,973	11,348	11,737
Demand totals (From Table	12,060	10,973	11,348	11,737
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	12,060	10,973	11,348	11,737
Demand totals	12,060	10,973	11,348	11,737
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	12,060	10,973	11,348	11,737
	Demand totals	12,060	10,973	11,348	11,737
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0
	Difference as % of Demand	0%	0%	0%	0
Multiple-dry year second year supply	Supply totals	12,060	10,973	11,348	11,737
	Demand totals	12,060	10,973	11,348	11,737
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	12,060	10,973	11,348	11,737
	Demand totals	12,060	10,973	11,348	11,737
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX F. SECURITY PARK SERVICE AREA

Security Park is located in the Central Basin as described in section 4.2.4. The SCGA is the management agency for the Central Basin; the CSCGMP is attached in Appendix Q.

The Central Basin is not adjudicated and California American Water exercises an appropriative right for Security Park as described in section 4.2.6. California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, meter retrofits of unmetered connections, and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Security Park	4	2	456	5,015	12,569	15,336

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1	1	3	3	4
Multi-family	4	3	2	2	5
Commercial	8	8	5	4	12
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	13	12	10	9	21

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	0	0	0	0	0
Multi-family	0	0	0	0	0
Commercial	22	6	0	0	6
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	7	2	0	0	2
Agriculture	0	0	0	0	0
Other	0	0	20	5	5
Total	29	8	20	5	13

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	163	65	0	0	65
Multi-family	0	0	0	0	0
Commercial	35	14	0	0	14
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	12	5	0	0	5
Agriculture	0	0	0	0	0
Other	35	14	0	0	14
Total	245	97	0	0	97

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,243	597	0	0	597
Multi-family	548	263	0	0	263
Commercial	46	22	0	0	22
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	38	18	0	0	18
Agriculture	0	0	0	0	0
Other	84	40	0	0	40
Total	1,958	940	0	0	940

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	3,526	1,671	4,113	1,769
Multi-family	963	457	1,364	587
Commercial	134	64	160	69
Industrial	0	0	0	0
Institutional/ governmental	0	0	0	0
Landscape	62	29	62	27
Agriculture	0	0	0	0
Other	288	136	988	425
Total	4,973	2,357	6,687	2,876

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	23.25	23.25	23.25	23.25
Multi-family residential	1.03	1.03	1.03	1.03
Total	24	24	24	24

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	2	1	10	99	247	302
Total	2	1	10	99	247	302

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	21	13	97	940	2,357	2,876
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	2	1	10	99	247	302
Total	23	15	107	1,039	2,605	3,178

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Water Supply Sources	Wholesaler Supplied Volume (Yes/No)	2010	2015	2020	2025	2030	2035
Supplier-produced groundwater to serve Zone 40	no	35,000	20,000	15,000	20,000	25,000	15,000
Wholesaler – (City of Sacramento) to serve portion of Zone 40 in City of Sacramento’s American river POU	yes	0	0	0	0	9,300	9,300
Supplier-produced surface water to Serve Zone 40: U.S. Bureau of Reclamation – CVP Supply (SMUD 1, SMUD 2, and Fazio Water)	yes	12,320	25,000	30,000	35,000	40,000	45,000
Supplier-produced surface water to Serve Zone 40: Appropriate Water – SWRCB Permit 21209	no	0	10,000	12,500	15,000	17,500	21,700
Other surface water transfers to serve Zone 40	no	0	0	0	0	0	5,200
Recycled water for Zone 40	yes	1,000	3,000	4,400	4,400	4,400	4,400
Remediated groundwater to serve Rio del Oro in Zone 40	no	0	0	2,500	5,000	7,500	8,900
Zone 40 Subtotal		48,320	58,000	64,400	79,400	103,700	109,500

Wholesaler – (City of Sacramento) to Serve Zone 50	yes	0	779	3,064	5,198	5,198	5,198
Supplier-produced groundwater to serve areas outside of Zone 40	no	6,000	6,000	6,000	6,000	6,000	6,000
Total		54,320	64,779	73,464	90,598	114,898	120,698

Source: SCWA 2010 Urban Water Management Plan

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Central Basin	15	0	0	0	0
Sacramento County Water Agency	0	107	1,039	2,605	3,178
Total	15	107	1,039	2,605	3,178

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Central Basin	18	13	33	19	15
Groundwater as a percent of total water supply	100%	100%	100%	100%	100%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Central Basin	0	0	0	0
Percent of total water supply	0%	0%	0%	0%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	1	0	71	775	1,943	2,371
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	1	0	71	775	1,943	2,371
Total		0	0	71	775	1,943	2,371

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Central Basin	X	X		X
Sacramento County Water Agency	X	X		X

¹ Source: Adapted from SCWA 2005 UWMP Table 2-6

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Central Basin	100%	12	10	7
Sacramento County Water Agency	100%	0	0	0
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years			
2009	1976	1975	1976	1977	N/A
Central Basin	100%	100%	100%	100%	N/A
1993	1977	1989	1990	1991	1992
Sacramento County Water Agency ¹	26.5%	76.7%	48.0%	43.7%	45.9%

¹ Source: SCWA 2010 UWMP

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	107	1,039	2,605	3,178
Demand totals (From Table 16)	107	1,039	2,605	3,178
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	107	1,039	2,605	3,178
Demand totals	107	1,039	2,605	3,178
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	107	1,039	2,605	3,178
	Demand totals	107	1,039	2,605	3,178
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	107	1,039	2,605	3,178
	Demand totals	107	1,039	2,605	3,178
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	107	1,039	2,605	3,178
	Demand totals	107	1,039	2,605	3,178
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX G. SUBURBAN ROSEMONT SERVICE AREA

Suburban Rosemont is located in the Central Basin as described in section 4.2.4. The SCGA is the management agency for the Central Basin; the CSCGMP is attached in Appendix Q. By 2015, Suburban Rosemont will receive wholesale surface water from the City of Sacramento (City). The wholesale City supply and supply reliability are described in more detail in section 5.1.1.

The Central Basin is not adjudicated and California American Water exercises an appropriative right for Suburban Rosemont as described in section 4.2.6. California American Water aims to reduce its pumping through conjunctive use of groundwater and surface water, meter retrofits of unmetered connections and other conservation efforts.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Suburban Rosemont	56,393	56,367	59,804	65,557	72,416	79,992

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,035	722	13,276	9,256	9,977
Multi-family	577	402	288	201	603
Commercial	1,347	939	671	468	1,407
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	2,959	2,063	14,235	9,924	11,987

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	12,999	7,678	871	514	8,193
Multi-family	1,377	813	0	0	813
Commercial	683	403	0	0	403
Industrial	3	2	0	0	2
Institutional/ governmental	115	68	0	0	68
Landscape	42	25	0	0	25
Agriculture	0	0	0	0	0
Other	411	243	2	1	244
Total	15,630	9,232	873	516	9,748

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	14,716	10,700	0	0	10,700
Multi-family	1,461	1,062	0	0	1,062
Commercial	725	527	0	0	527
Industrial	3	2	0	0	2
Institutional/ governmental	122	89	0	0	89
Landscape	45	32	0	0	32
Agriculture	0	0	0	0	0
Other	438	319	0	0	319
Total	17,509	12,731	0	0	12,731

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	16,131	9,774	0	0	9,774
Multi-family	1,602	970	0	0	970
Commercial	794	481	0	0	481
Industrial	3	2	0	0	2
Institutional/ governmental	134	81	0	0	81
Landscape	49	30	0	0	30
Agriculture	0	0	0	0	0
Other	480	291	0	0	291
Total	19,194	11,630	0	0	11,630

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	17,819	10,797	19,683	11,927
Multi-family	1,769	1,072	1,954	1,184
Commercial	877	532	969	587
Industrial	4	2	4	3
Institutional/ governmental	148	90	163	99
Landscape	54	33	60	36
Agriculture	0	0	0	0
Other	531	321	586	355
Total	21,202	12,847	23,420	14,191

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	28.02	28.02	28.02	28.02
Multi-family residential	1.24	1.24	1.24	1.24
Total	29	29	29	29

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	1,244	1,023	1,336	1,221	1,349	1,490
Total	1,244	1,023	1,336	1,221	1,349	1,490

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	11,987	9,748	12,731	11,630	12,847	14,191
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	1,244	1,023	1,336	1,221	1,349	1,490
Total	13,231	10,771	14,068	12,851	14,195	15,680

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento ¹	0	1,691	2,029	2,126	2,174

¹ The firm capacity City of Sacramento supply of 2,578 afy is distributed betw

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Wholesaler sources ¹	2010	2015	2020	2025	2030
Surface Water					
Sacramento	81,800	81,800	81,800	81,800	81,800
American Ri	145,700	170,200	196,200	222,200	245,000
Groundwater	33,600	33,600	33,600	33,600	33,600
Total	261,100	285,600	311,600	337,600	360,400

¹ Source: City of Sacramento 2005 UWMP Table 5-5

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
City of Sacramento	0	1,691	2,029	2,126	2,174
Central Basin	10,771	12,377	10,822	12,070	13,506
Total	10,771	14,068	12,851	14,195	15,680

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Central Basin	12,322	13,814	13,566	12,005	10,771
Groundwater as a percent of total water supply	100%	100%	100%	100%	100%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Central Basin	12,377	10,822	12,070	13,506
Percent of total water supply	88%	84%	85%	86%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	8,717	8,713	9,244	10,134	11,194	12,365
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	8,717	8,713	9,244	10,134	11,194	12,365
Total		8,713	9,244	10,134	11,194	12,365	

Table 38. Future Water Supply Projects (DWR Table 26)

Project Name	Projected Start Date	Projected Completion Date	Average-year AF to agency (afy)	Single-dry year yield (afy)	Multiple-Dry-Year 1 (afy)	Multiple-Dry-Year 2 (afy)	Multiple-Dry-Year 3 (afy)
Rosemont Conjunctive Use Pipeline	In-progress	31-Dec-12	2,578	2,425	2,374	2,425	2,425
Total			2,578	2,425	2,374	2,425	2,425

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Central Basin				
City of Sacramento	X	X		X

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Central Basin	100%	10,282	10,824	11,374
City of Sacramento ¹	100%	0	0	0
Percent of normal year:	100%	100%	100%	100%

¹The multiple dry years are based on the multiple dry years conditions (1933, 1934, 1977) applied to 2006, 2007, and 2008 supply projections in Table 5-6 of the City of Sacramento 2005 UWMP (12). However, the City of Sacramento supply is not expected to be available until 2015.

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		1975	1976	1977
2009	1976	100%	100%	100%
Central Basin	100%	100%	100%	100%
City of Sacramento ¹	100%	100%	100%	100%

¹The multiple dry years are based on the multiple dry years conditions (1933, 1934, 1977) applied to 2006, 2007, and 2008 supply projections in Table 5-6 of the City of Sacramento 2005 UWMP (12).

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	14,068	12,851	14,195	15,680
Demand totals (From Table	14,068	12,851	14,195	15,680
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	14,068	12,851	14,195	15,680
Demand totals	14,068	12,851	14,195	15,680
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	14,068	12,851	14,195	15,680
	Demand totals	14,068	12,851	14,195	15,680
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals ^{1,2}	14,068	12,851	14,195	15,680
	Demand totals ^{2,3,4}	14,068	12,851	14,195	15,680
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals ^{1,2}	14,068	12,851	14,195	15,680
	Demand totals ^{2,3,4}	14,068	12,851	14,195	15,680
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX H. WALNUT GROVE SERVICE AREA

Walnut Grove is located in the Solano Subbasin. There is currently no management agency with a groundwater management plan for the Solano Subbasin.

The Solano Subbasin is not adjudicated and California American Water exercises an appropriate pumping right for Isleton.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
Walnut Grove	255	256	255	255	255	256

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

	2005				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	175	104	0	0	104
Multi-family	6	4	0	0	4
Commercial	14	8	0	0	8
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	195	116	0	0	116

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

	2010				
	Metered	Not Metered		Total	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	177	97	0	0	97
Multi-family	8	4	0	0	4
Commercial	10	6	0	0	6
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	1	1	0	0	1
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	196	108	0	0	108

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

Water use sectors	2015				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	177	95	0	0	95
Multi-family	8	4	0	0	4
Commercial	10	5	0	0	5
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	1	1	0	0	1
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	196	105	0	0	105

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

Water use sectors	2020				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	176	92	0	0	92
Multi-family	8	4	0	0	4
Commercial	10	5	0	0	5
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	1	1	0	0	1
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	195	102	0	0	102

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

Water use sectors	2025		2030	
	Metered		Metered	
	# of Accounts	Volume	# of Accounts	Volume
Single family	177	92	177	92
Multi-family	8	4	8	4
Commercial	10	5	10	5
Industrial	0	0	0	0
Institutional/ governmental	0	0	0	0
Landscape	1	1	1	1
Agriculture	0	0	0	0
Other	0	0	0	0
Total	196	102	196	102

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	0.41	0.41	0.41	0.41
Multi-family residential	0.02	0.02	0.02	0.02
Total	0	0	0	0

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	12	11	11	11	11	11
Total	12	11	11	11	11	11

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	116	108	105	102	102	102
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	12	11	11	11	11	11
Total	128	119	116	112	113	113

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Solano Subbasin	119	116	112	113	113
Total	119	116	112	113	113

Table 26. Groundwater- Volume Pumped (DWR Table 18)

Basin Name(s)	2006	2007	2008	2009	2010
Solano Subbasin	121	191	152	126	119
Groundwater as a percent of total water supply	100%	100%	100%	100%	100%

Table 27. Groundwater- Volume Projected to be Pumped (DWR Table 19)

Basin Name(s)	2015	2020	2025	2030
Solano Subbasin	116	112	113	113
Percent of total water supply	100%	100%	100%	100%

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	39	40	39	39	39	40
Volume that meets recycled water standard	0	0	0	0	0	0

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
River discharge	Secondary effluent	39	40	39	39	39	40
Total			40	39	39	39	40

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Solano Subbasin				

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Solano Subbasin	100%	107	107	106
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	2009
Single-Dry Water Year	1976
Multiple-Dry Water Years	1975-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
2009	1976	1975	1976	1977
Solano Subbasin	100%	100%	100%	100%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	116	112	113	113
Demand totals (From Table	116	112	113	113
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	116	112	113	113
Demand totals	116	112	113	113
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	116	112	113	113
	Demand totals	116	112	113	113
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	116	112	113	113
	Demand totals	116	112	113	113
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	116	112	113	113
	Demand totals	116	112	113	113
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX I. WEST PLACER SERVICE AREA

West Placer is located in the North American Subbasin. West Placer only uses surface water purchased from PCWA. The water is wheeled from PCWA through the City of Roseville's (Roseville) system to two existing interties with California American Water. California American Water does not anticipate utilizing groundwater to supply West Placer in the future.

Table 6. Population Past, Current, & Projected (DWR Table 2)

	2005	2010	2015	2020	2025	2030
West Placer	3,454	4,914	8,997	9,888	13,366	18,068

Table 7. Water Deliveries- Actual, 2005 (DWR Table 3)

Water use sectors	2005				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	900	534	2	1	535
Multi-family	7	4	0	0	4
Commercial	16	10	0	0	10
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	923	548	2	1	549

Table 8. Water Deliveries- Actual, 2010 (DWR Table 4)

Water use sectors	2010				
	Metered		Not Metered		Total
	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	909	737	0	0	737
Multi-family	1	1	0	0	1
Commercial	15	12	0	0	12
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	33	27	0	0	27
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	958	776	0	0	776

Table 9. Water Deliveries- Projected 2015 (DWR Table 4)

	2015				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,664	1,341	0	0	1,341
Multi-family	2	1	0	0	1
Commercial	27	22	0	0	22
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	60	49	0	0	49
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	1,754	1,414	0	0	1,414

Table 10. Water Deliveries- Projected, 2020 (DWR Table 6)

	2020				
	Metered		Not Metered		Total
Water use sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	1,829	1,741	0	0	1,741
Multi-family	2	2	0	0	2
Commercial	30	29	0	0	29
Industrial	0	0	0	0	0
Institutional/ governmental	0	0	0	0	0
Landscape	66	63	0	0	63
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total	1,928	1,834	0	0	1,834

Table 11. Water Deliveries- Projected, 2025, and 2030 (DWR Table 7)

	2025		2030	
	Metered		Metered	
Water use sectors	# of Accounts	Volume	# of Accounts	Volume
Single family	2,473	2,353	3,343	3,180
Multi-family	3	3	4	3
Commercial	41	39	55	52
Industrial	0	0	0	0
Institutional/ governmental	0	0	0	0
Landscape	90	85	121	115
Agriculture	0	0	0	0
Other	0	0	0	0
Total	2,606	2,480	3,523	3,352

Table 12. Low-Income Projected Water Demands

Low Income Water Demands	2010	2011	2012	2013
Single-family residential	11.88	11.88	11.88	11.88
Multi-family residential	0.52	0.52	0.52	0.52
Total	12	12	12	12

Table 13. Sales to Other Water Agencies (DWR Table 9)

Water distributed	2005	2010	2015	2020	2025	2030
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
name of agency	0	0	0	0	0	0
Total	0	0	0	0	0	0

Table 14. Additional Water Uses and Losses (DWR Table 10)

Water use	2005	2010	2015	2020	2025	2030
Non-Revenue Water	57	82	148	193	260	352
Total	57	82	148	193	260	352

Table 15. Total Water Use (DWR Table 11)

Water Use	2005	2010	2015	2020	2025	2030
Total water deliveries (from DWR Tables 3 to 7)	549	776	1,414	1,834	2,480	3,352
Sales to other water agencies (from DWR Table 9)	0	0	0	0	0	0
Additional water uses and losses (from DWR Table 10)	57	82	148	193	260	352
Total	606	858	1,562	2,027	2,740	3,704

Table 19. Retail agency Demand Projections Provided to Wholesale Suppliers (DWR Table 12)

Wholesaler	2010	2015	2020	2025	2030
Placer County Water Agency	858	1,562	2,027	2,740	3,704

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Placer County Water Agency Supply Sources	Average Water Year	Single Dry	Multiple Dry Years			
			Year 1	Year 2	Year 3	Year 4
PCWA						
Middle Fork Project	120,000	120,000	120,000	120,000	120,000	120,000
Central Valley Project	35,000	26,250	26,250	26,250	26,250	26,250
PG&E	100,400	50,000	75,300	75,300	75,300	75,300
City of Lincoln	3,300	1,650	2,475	2,475	2,475	2,475
City of Roseville-Central Valley Project	32,000	24,000	24,000	24,000	24,000	24,000
South Sutter Water District	5,000	0	0	0	0	0
Total	295,700	221,900	248,025	248,025	248,025	248,025
Percent of average year	100%	75%	84%	84%	84%	84%

Source: Placer County Water Agency Integrated Water Resources Plan, Brown and Caldwell

Table 20. Wholesale Supplies- Existing and Planned Sources of Water (DWR Table 17)

Placer County Water Agency Supply Sources	2010	2015	2020	2025	2030
PCWA					
Middle Fork Project	120,000	120,000	120,000	120,000	120,000
Central Valley Project	35,000	35,000	35,000	35,000	35,000
PG&E	100,400	100,400	100,400	100,400	100,400
City of Lincoln	3,300	3,300	3,300	3,300	3,300
City of Roseville-Central Valley Project	32,000	32,000	32,000	32,000	32,000
South Sutter Water District	5,000	5,000	5,000	5,000	5,000
Total	295,700	295,700	295,700	295,700	295,700

Source: Adapted from Placer County Water Agency Integrated Water

Table 21. Water Supplies- Current and Projected (DWR Table 16)

Water Supply Sources	2010	2015	2020	2025	2030
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Total	858	1,562	2,027	2,740	3,704

Table 32. Recycled Water- Wastewater Collection and Treatment (DWR Table 21)

Type of Wastewater	2005	2010	2015	2020	2025	2030
Wastewater collected & treated in service area	534	760	1,391	1,528	2,066	2,793
Volume that meets recycled water standard	534	760	1,391	1,528	2,066	2,793

Table 33. Recycled Water- Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	2010	2015	2020	2025	2030
Creek discharge	Tertiary w/ disinfection	760	1,391	1,528	2,066	2,793
Total		760	1,391	1,528	2,066	2,793

Table 34. Recycled Water- Potential and Future Use (DWR Table 23)

User type	Description	2015	2020	2025	2030
Agricultural irrigation	Tertiary w/ disinfection	0	0	0	0
Landscape irrigation	Tertiary w/ disinfection	540	540	540	540
Commercial irrigation					
Golf course irrigation					
Wildlife habitat	Tertiary w/ disinfection	1,128	1,239	1,675	2,264
Wetlands	Tertiary w/ disinfection	0	0	0	0
Industrial reuse	Tertiary w/ disinfection	295	299	374	471
Groundwater recharge	Tertiary w/ disinfection	1,597	1,927	2,801	4,017
Seawater barrier					
Geothermal/Energy					
Indirect potable reuse					
Other (user type)					
Total		3,560	4,004	5,390	7,293

Table 35. Recycled Water- 2005 UWMP Use Projection Compared to 2010 Actual (DWR Table 24)

Use Type	2010 Actual Use	2005 Projection for 2010
Agricultural irrigation	0	0
Landscape irrigation ²	0	0
Commercial irrigation ³	0	0
Golf course irrigation	0	0
Wildlife habitat	0	0
Wetlands	0	0
Industrial reuse	0	0
Groundwater recharge	0	0
Seawater barrier	0	0
Geothermal/Energy	0	0
Indirect potable reuse	0	0
Total	0	0

Table 39. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Water Supply Sources	Legal	Environmental	Water Quality	Climatic
Placer County Water Agency				

Table 40. Supply Reliability- Current Water Sources (DWR Table 31)

Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Placer County Water Agency	100%	954	1,173	1,442
Percent of normal year:	100%	100%	100%	100%

Table 55. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Average Water Year	Not Provided
Single-Dry Water Year	1976
Multiple-Dry Water Years	1977-1977

Table 56. Supply Reliability- Historic Conditions (DWR Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
Year Not Provided	1976	1976	1977	1977
Placer County Water Agency	75%	84%	84%	84%

Table 58. Supply and Demand Comparison- Normal Year (DWR Table 32)

	2015	2020	2025	2030
Supply totals (from Table 16)	1,562	2,027	2,740	3,704
Demand totals (From Table	1,562	2,027	2,740	3,704
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 59. Supply and Demand Comparison- Single Dry Year (DWR Table 33)

	2015	2020	2025	2030
Supply totals	1,562	2,027	2,740	3,704
Demand totals	1,562	2,027	2,740	3,704
Difference	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%

Table 60. Supply and Demand Comparison- Multiple Dry-Year Events (DWR Table 34)

		2015	2020	2025	2030
Multiple-dry year first year supply	Supply totals	1,562	2,027	2,740	3,704
	Demand totals	1,562	2,027	2,740	3,704
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year second year supply	Supply totals	1,562	2,027	2,740	3,704
	Demand totals	1,562	2,027	2,740	3,704
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%
Multiple-dry year third year supply	Supply totals	1,562	2,027	2,740	3,704
	Demand totals ²	1,562	2,027	2,740	3,704
	Difference	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%

APPENDIX J. BASELINE DAILY PER CAPITA WATER USE MEMORANDUM

Technical Memorandum



Date: 6/27/2011

To: Fred Feizollahi
California American Water
4701 Beloit Drive
Sacramento, CA 95838-2434

Phone: (916) 568-4218

CC: Andy Soule; Monica Na

Prepared by: Spencer Waterman

Reviewed by: Jeffery Szytel, P.E.

Project: 2010 Urban Water Management Plan for the Northern Division- Sacramento District

SUBJECT: BASELINE DAILY PER CAPITA WATER USE

This memorandum presents the procedure used by California American Water's Northern Division Sacramento District to meet the requirements of Senate Bill x 7-7 (SB7) as defined in the Water Conservation Act of 2009 as incorporated into Division 6 of the California Water Code, commencing with Section 10608 of Part 2.55.

Background

On November 10, 2009, Governor Arnold Schwarzenegger signed Senate Bill x 7-7 into law. The legislation requires all water suppliers to achieve a reduction in per capita water use of 20% by December 31, 2020, with an interim target of 10% reduction by December 31, 2015. The legislation requires each urban water supplier to develop, and include in its Urban Water Management Plans (UWMPs), estimates of: 1) *baseline* daily per capita water use; 2) daily per capita water use *target*; 3) daily per capita water use *interim target*; and 4) *compliance* daily per capita water use. The UWMP must also include bases for determining the estimates, with references to supporting data. However, SB 7 did not include a detailed description of the allowable methodologies for determining the required values. Instead, it required California Department of Water Resources (DWR) to develop appropriate methodologies and criteria, and to make them available to water suppliers no later than October 1, 2010. In consideration of this delay, the bill extended the deadline for adoption of the 2010 UWMP to July 1, 2011.

In connection with preparation of California American Water's Sacramento District 2010 UWMP update, California American Water hired Water Systems Consulting, Inc. (WSC) to develop the required estimates described by SB 7. The service areas being examined by WSC are Antelope, Arden, Isleton, Lincoln Oaks, Parkway, Security Park, Suburban Rosemont, Walnut Grove, and West Placer. Consistent with the requirements outlined in DWR's Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan, compliance of all nine service areas will be evaluated for the District as a whole. To facilitate completion of the 2010 UWMP project by July 1, 2011 California American Water directed WSC to apply methodologies consistent with those described in the Methodologies for Calculating Baseline and Compliance Urban Per Capita

Water Use guidebook (Methodologies Guidebook). The selected procedure used to develop the required SB7 estimates includes the following basic steps:

1. Calculate average gross daily water use per capita, reported in gallons per capita per day, based on gross water use and service area population for a continuous 10-year period ending no earlier than December 31, 2004.
2. Calculate the urban water use target (equal to 80% of baseline daily per capita water use)
3. Calculate the interim urban water use target (equal to 90% of baseline daily per capita water use)
4. Calculate the compliance daily per capita water use (equal to the gross daily water use per capita during the final year of the reporting period (i.e. 2010))
5. Check and confirm targets using five-year running average

Gross Water Use

SB 7 defines gross water use as:

“The total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following: (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier; (2) The net volume of water that the urban retail water supplier places into long-term storage; (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.; (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.”

Groundwater and surface water are the only sources of water in California American Water’s Sacramento District. From 1999 through present, California American Water has not stored any water long-term or sold any water to other agencies. Therefore, gross water use is calculated as the sum of California American Water’s total surface water purchases and groundwater production.

Populations

GIS shapefiles with census populations by census block were obtained from the Sacramento Council of Governments (SACOG) and the United States Census Bureau. These GIS shapefiles contained census populations separated into census blocks covering the Sacramento region. In 2010, there were approximately 29,107 census blocks covering Sacramento and Placer Counties with approximately 2,483 census blocks overlaying some part of the California American Water’s service areas. Figure 1 through Figure 10 show the 2010 census blocks in relation to California American Water’s service area boundaries.

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

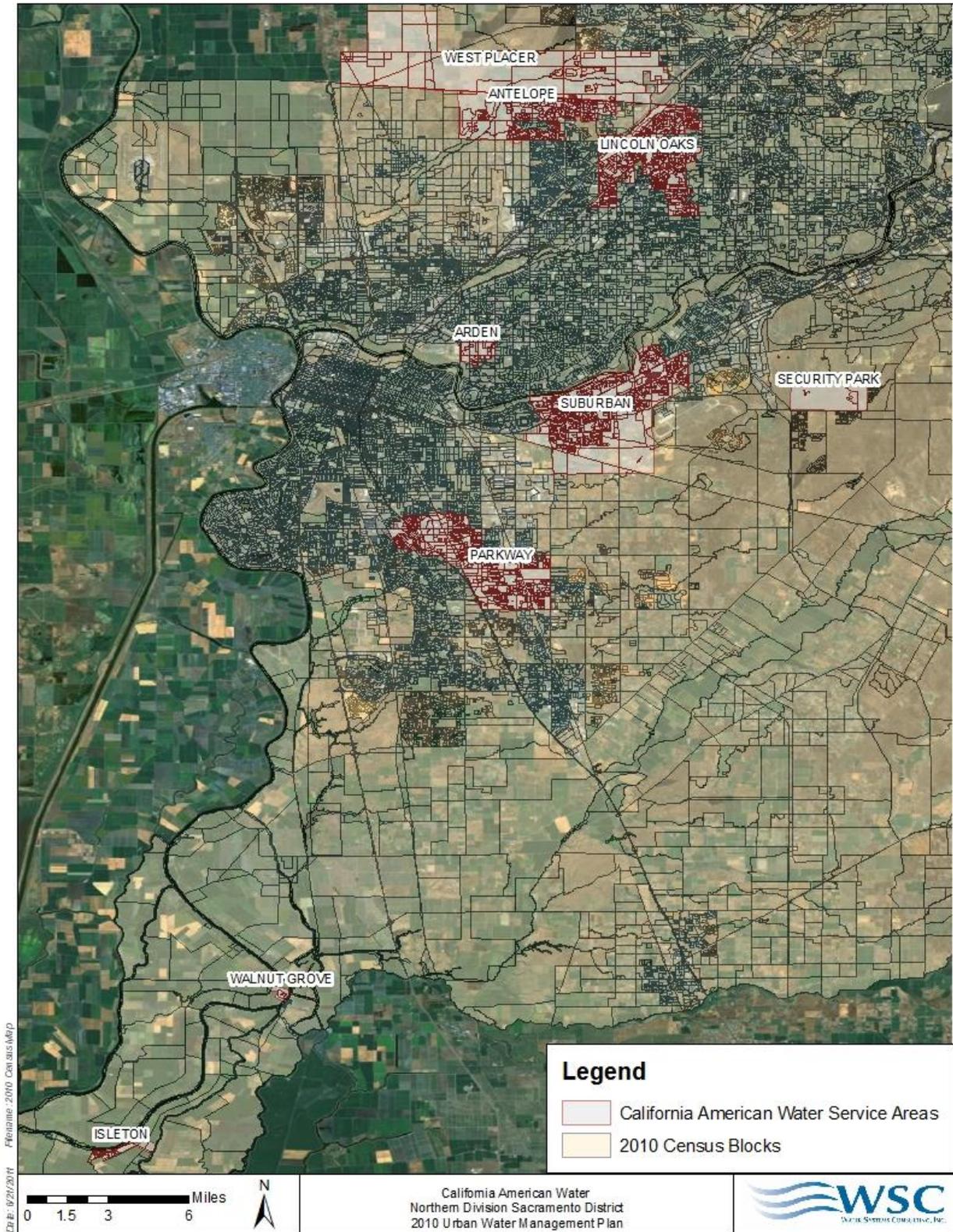


Figure 1. California American Water Service Area Boundaries with 2010 Population Data

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

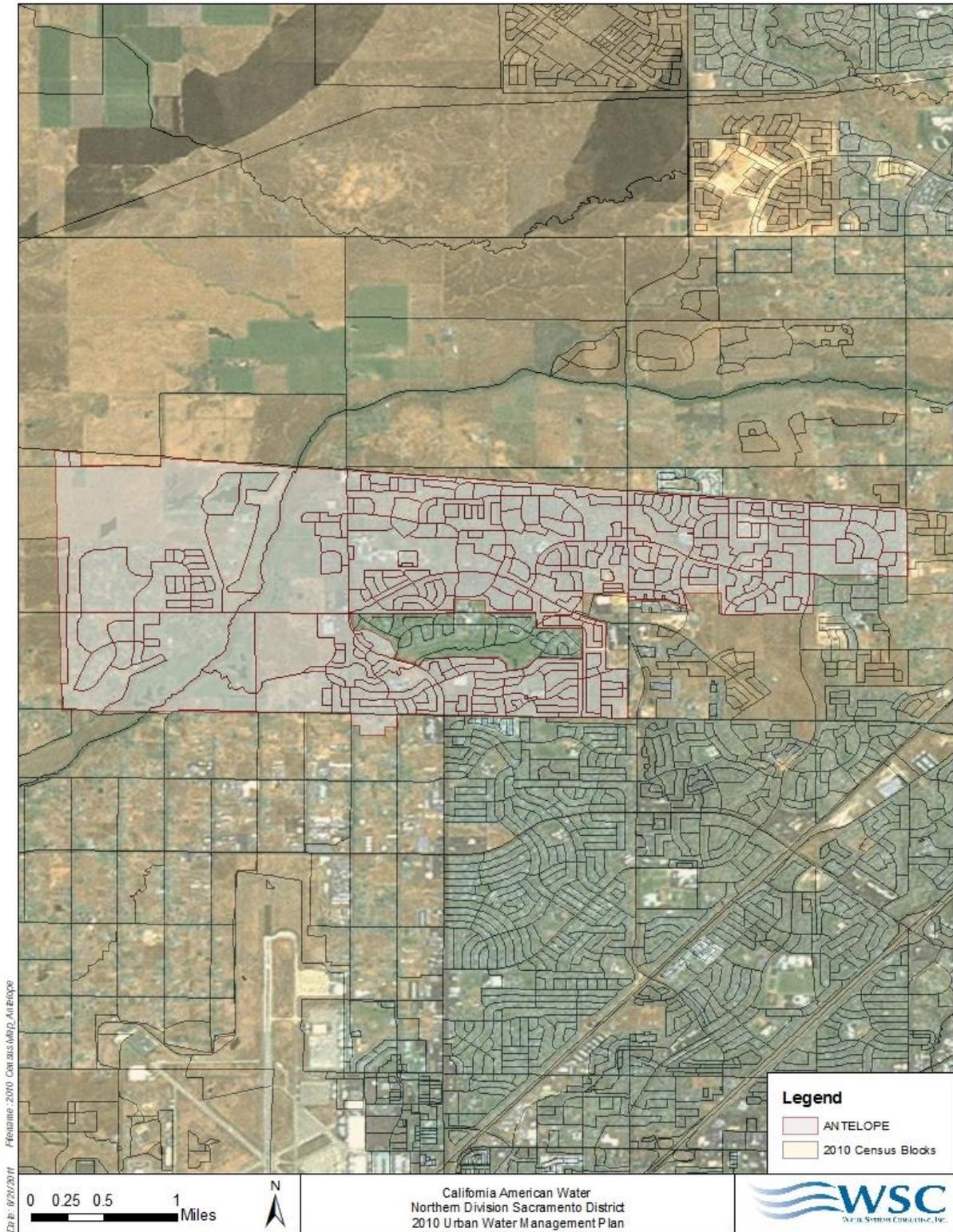


Figure 2. Antelope 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

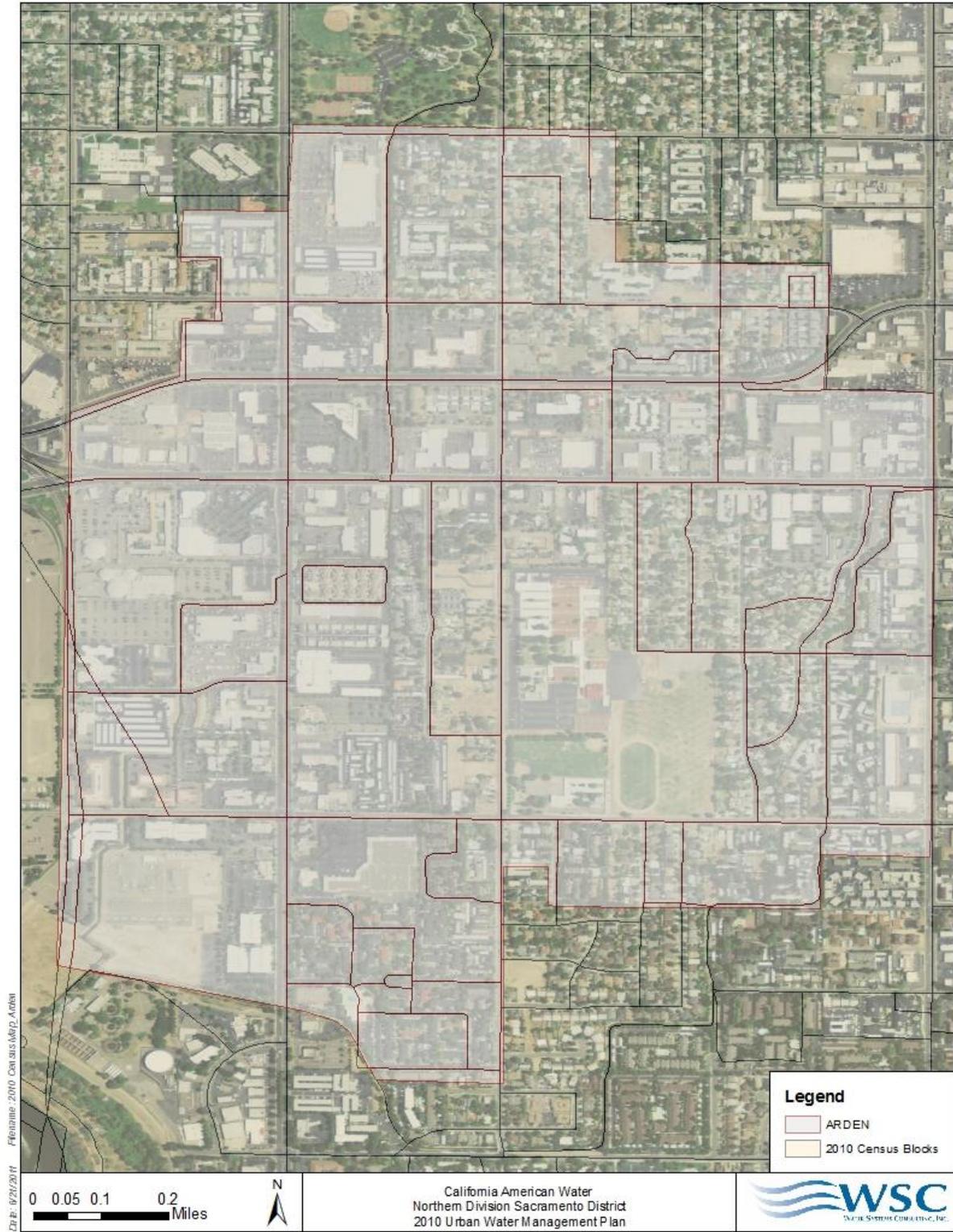


Figure 3. Arden 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx



Figure 4. Isleton 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

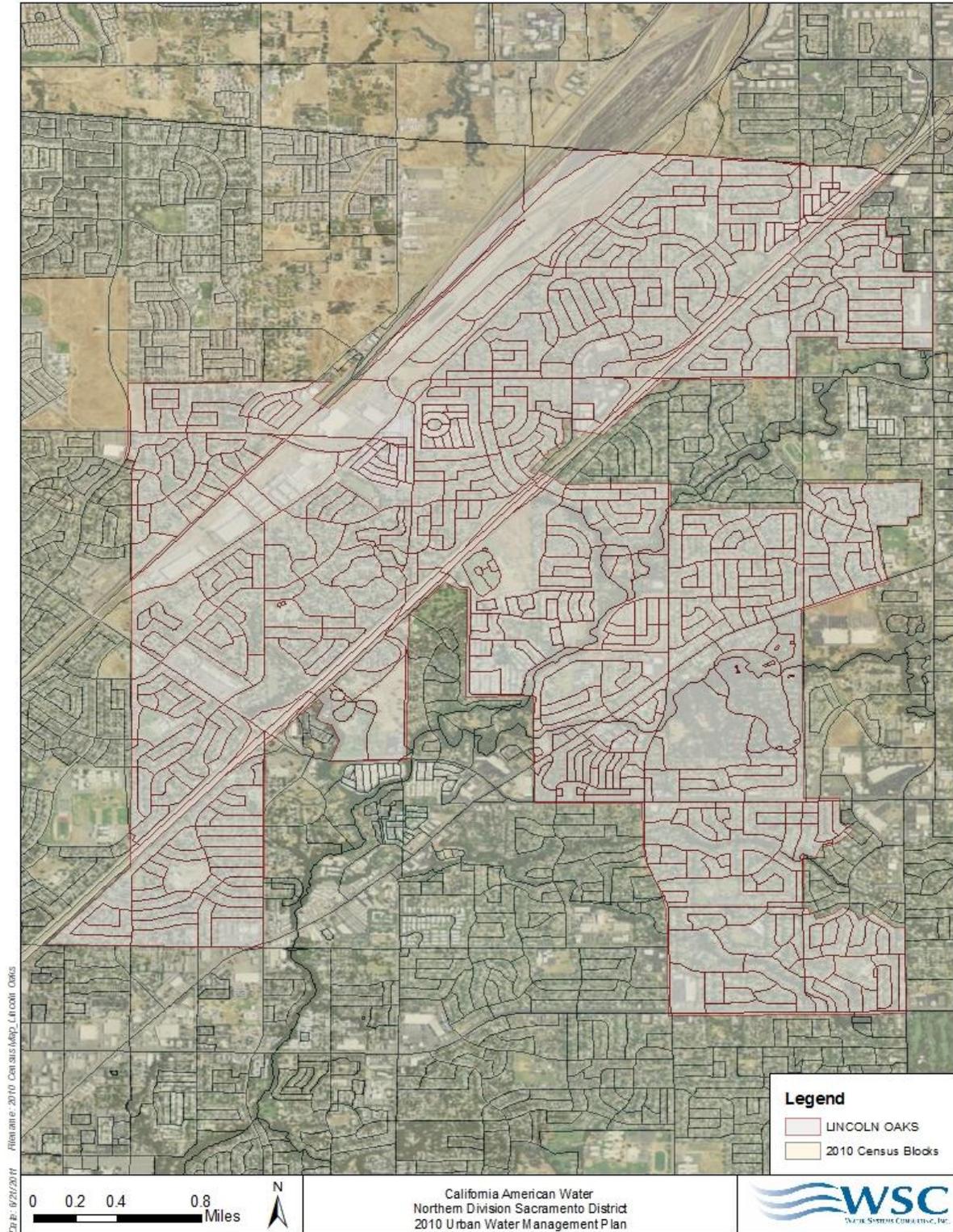


Figure 5. Lincoln Oaks 2000 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

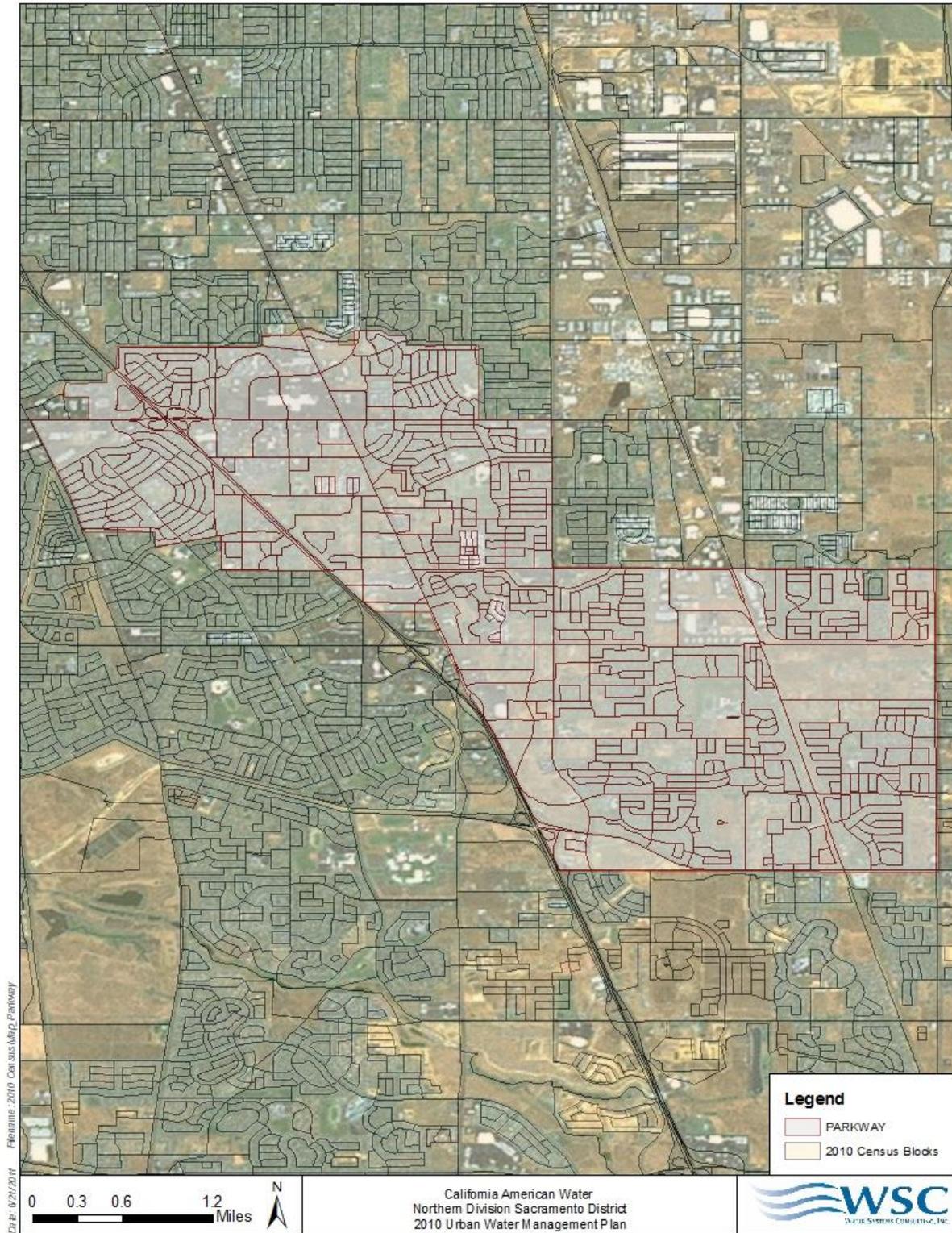


Figure 6. Parkway 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx



Figure 7. Security Park 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

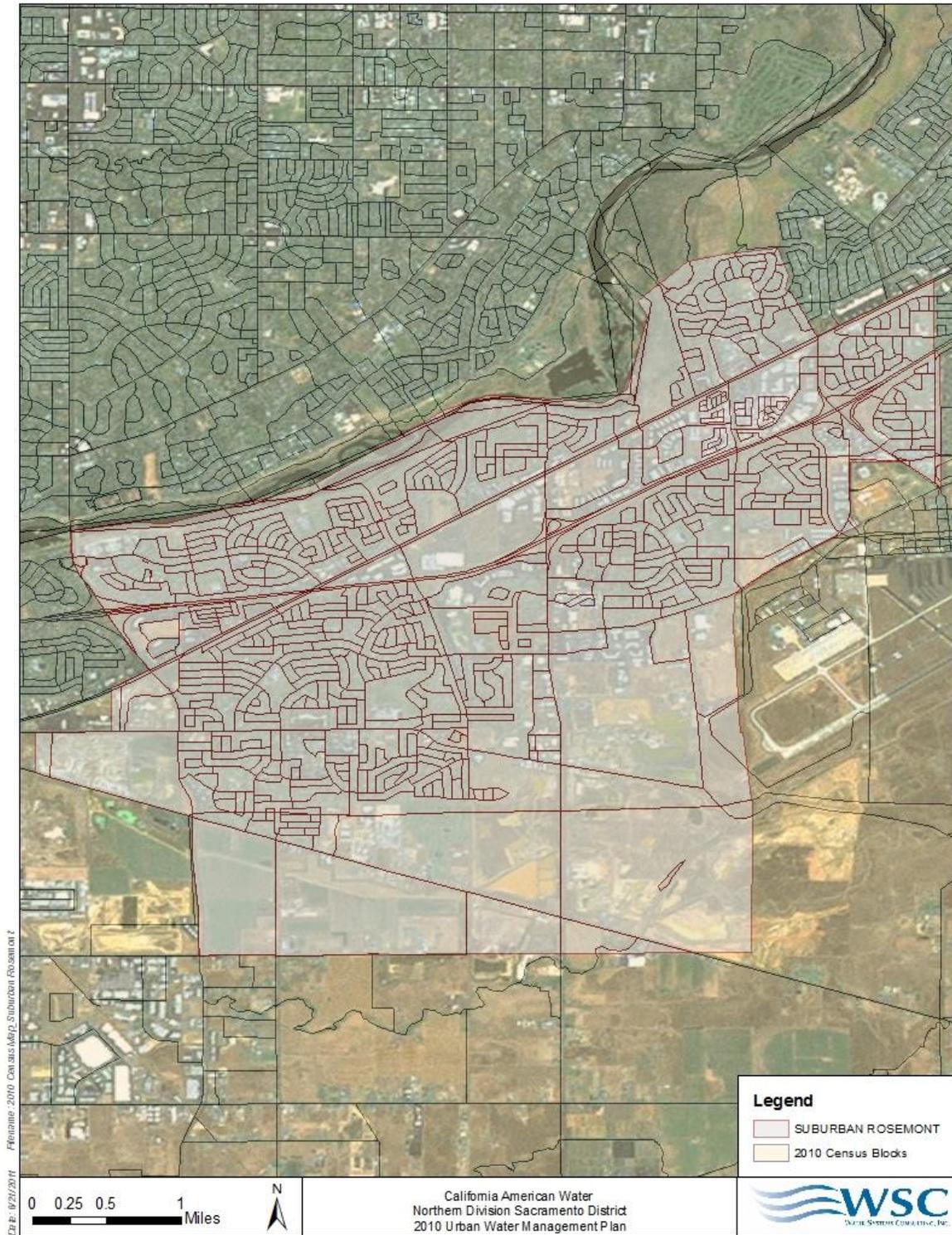


Figure 8. Suburban Rosemont 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx



Figure 9. Walnut Grove 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

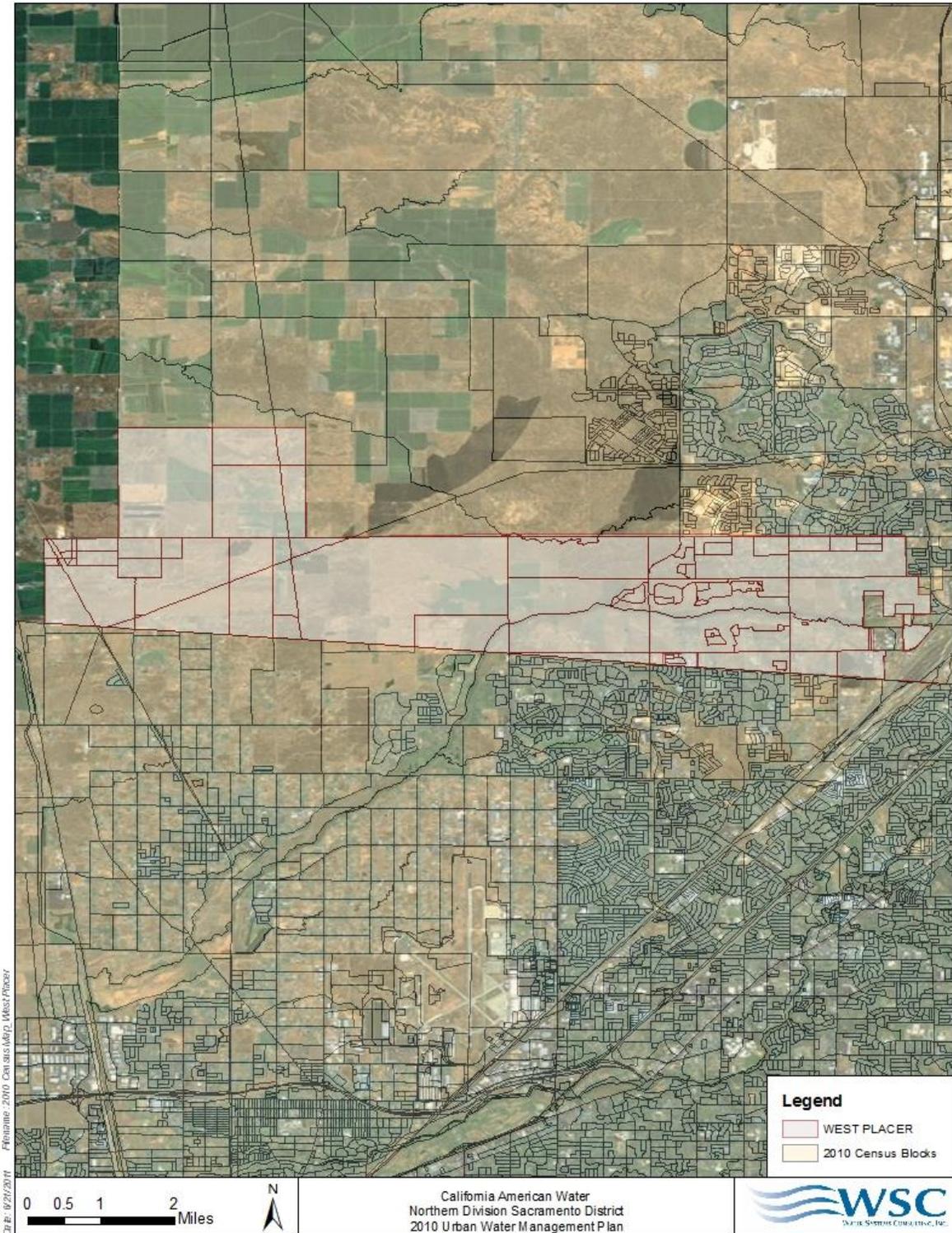


Figure 10. West Placer 2010 Census Blocks

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

Although spatial population distribution within each census block can vary based on development and land use patterns, WSC assumed that the distribution of population within each census block was uniform. The California American Water service area boundaries were intersected with the census block boundaries to calculate the area of each block within California American Water’s service areas. WSC then applied a persons per acre factor, determined from the relevant Census, to each intersecting block. Finally, the calculated population of each block within California American Water’s service area was summed up to provide populations by service area for 1990, 2000, and 2010.

Baseline Per Capita Water Use

WSC calculated per capita water use using gross water use values and the population estimates shown in Table 1. The annual per capita water use value was averaged across 10-year periods ranging from 1999-2008 through 2001-2010.

Table 1. Baseline Daily Per Capita Water Use

Calendar Year	Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)	10 year running average (gpcd)
1994	171,570	n/a	n/a	
1995	174,824	n/a	n/a	
1996	178,079	n/a	n/a	
1997	181,333	n/a	n/a	
1998	184,588	n/a	n/a	
1999	187,842	46	243	
2000	191,097	42	219	
2001	191,637	42	217	
2002	192,178	42	218	
2003	195,589	45	229	
2004	196,422	43	219	
2005	197,255	40	204	
2006	198,087	40	202	
2007	198,920	40	201	
2008	199,753	43	217	217
2009	200,585	40	198	212
2010	201,418	33	165	207
Base Daily Per Capita Water Use				217

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

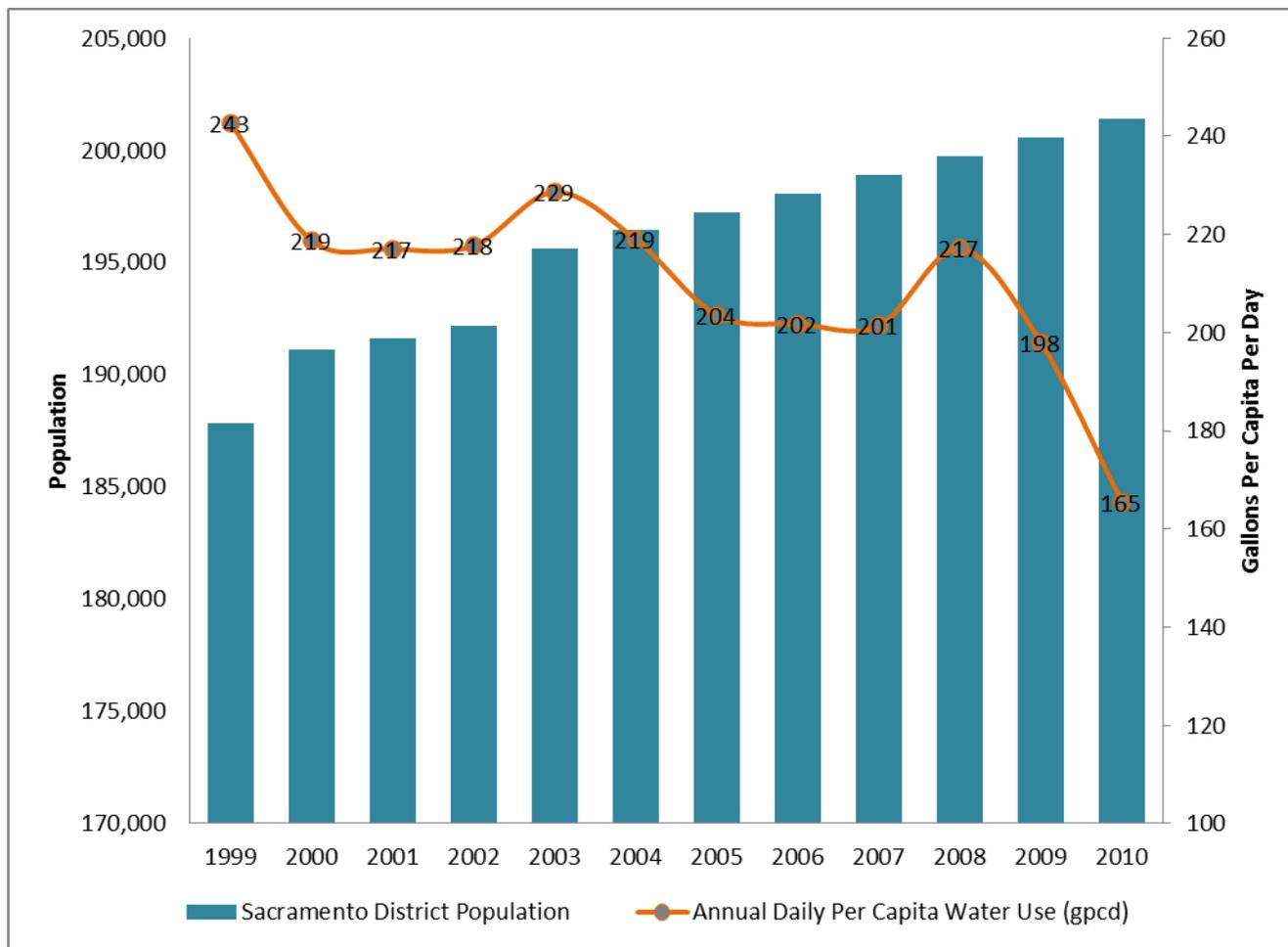


Figure 11. Population and Historical Per Capita Water Use¹

Water Use Targets

The baseline daily per capita water use is used to calculate the urban water use target (equal to 80% of baseline daily per capita water use) and the interim urban water use target (equal to 90% of baseline daily per capita water use). The per capita water use target and interim target estimates are calculated using Method 1, Method 3, and Method 4 from the Methodologies Report. Table 2 shows the estimated daily per capita water use targets for each method analyzed.

¹ 1999 population was calculated through linear interpolation between 1990 and 2000 census populations. Populations for years between 2000 and 2010 were calculated by linear interpolation between 2000 and 2010 census populations. There is an irregular increase in the population in 2003 due to the addition of the West Placer system in 2003.
 6/27/2011

Table 2. Daily Per Capita Water Use Targets

Calculation Method	Water Use Target (gpcd)
Method 1: 80% of Baseline Per Capita Water Use	173
Method 2: Performance Standards	Not calculated
Method 3: 95% of Regional Target	167
Method 4: DWR Approach	138
Selected Urban Water Use Target	173

Method 1 involves calculating the target based on 80% of baseline daily per capita water use and the interim target based on 90% of the baseline daily per capita water use.

Method 2 was not used for various reasons. Method 2 involves calculating the per capita daily water use by using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses.

Method 3 calculates the water use target as 95% of the applicable state hydrologic region target as stated in the draft 20x2020 Water Conservation Plan. California American Water’s service areas are located in the Sacramento hydrologic region number 5 as defined in the State’s 20x2020 Water Conservation Plan.

Method 4 is an approach developed by DWR and it uses a spreadsheet to calculate estimated water savings factors to estimate targets.

Minimum Water Use Reduction Requirements

The selected target must be lower than a selected five-year running average ending no earlier than December 31, 2007 and ending no later than December 31, 2010 per the requirements of California Water Code Section 10608.22. Table 3 shows the minimum water use reduction based on five-year running averages. Table 4 shows the confirmation that the selected target does meet the minimum water use reduction. Table 5 shows the final baseline, compliance, interim target, and target per capita water use. Table 6 shows the status of meeting the interim target and target based on current compliance per capita water use. The values shown will be reported in California American Water’s 2010 Sacramento District UWMP.

6/27/2011

Table 3. Minimum Water Use Reduction

Calendar Year	Distribution System Population	Daily System Gross Water Use (mgd)	Annual Daily Per Capita Water Use (gpcd)	5 year running average
2003	195,589	45	229	
2004	196,422	43	219	
2005	197,255	40	204	
2006	198,087	40	202	
2007	198,920	40	201	211
2008	199,753	43	217	209
2009	200,585	40	198	204
2010	201,418	33	165	197
Base Daily Per Capita Water Use				211

Table 4. Target Confirmation

Selected Urban Water Use Target (gpcd)	173
95% of 5-year Base Daily Per Capita Water Use (gpcd)	200
Selected Urban Water Use Target < 95% of 5-year Base GPCD	Yes
Confirmed Urban Water Use Target (gpcd)	173

Table 5. Baseline, Compliance, Interim Target, and Target Water Use

Parameter	Water Use (gpcd)
Base Daily Per Capita Water Use	217
2010 Daily Per Capita Water Use	165
2015 Interim Urban Water Use Target	195
2020 Urban Water Use Target	173

6/27/2011

w:\3.0 projects\caw\004_nordiv 2005, 2010 uwmps\7.0 deliverables\2010 uwmp final\master files\per capita water use memo_final.docx

Table 6. Water Use Reduction Status

Water Use Reduction (on gpcd basis)	% Reduction ¹
Achieved by 2010	23.7%
Needed to meet 2015 target	-18.0%
Needed to meet 2020 target	-4.9%

¹ A negative % means the compliance is currently lower than the interim target.

Figure 12 shows the historical, baseline, targets, compliance, and projected per capita water use for the Sacramento District.

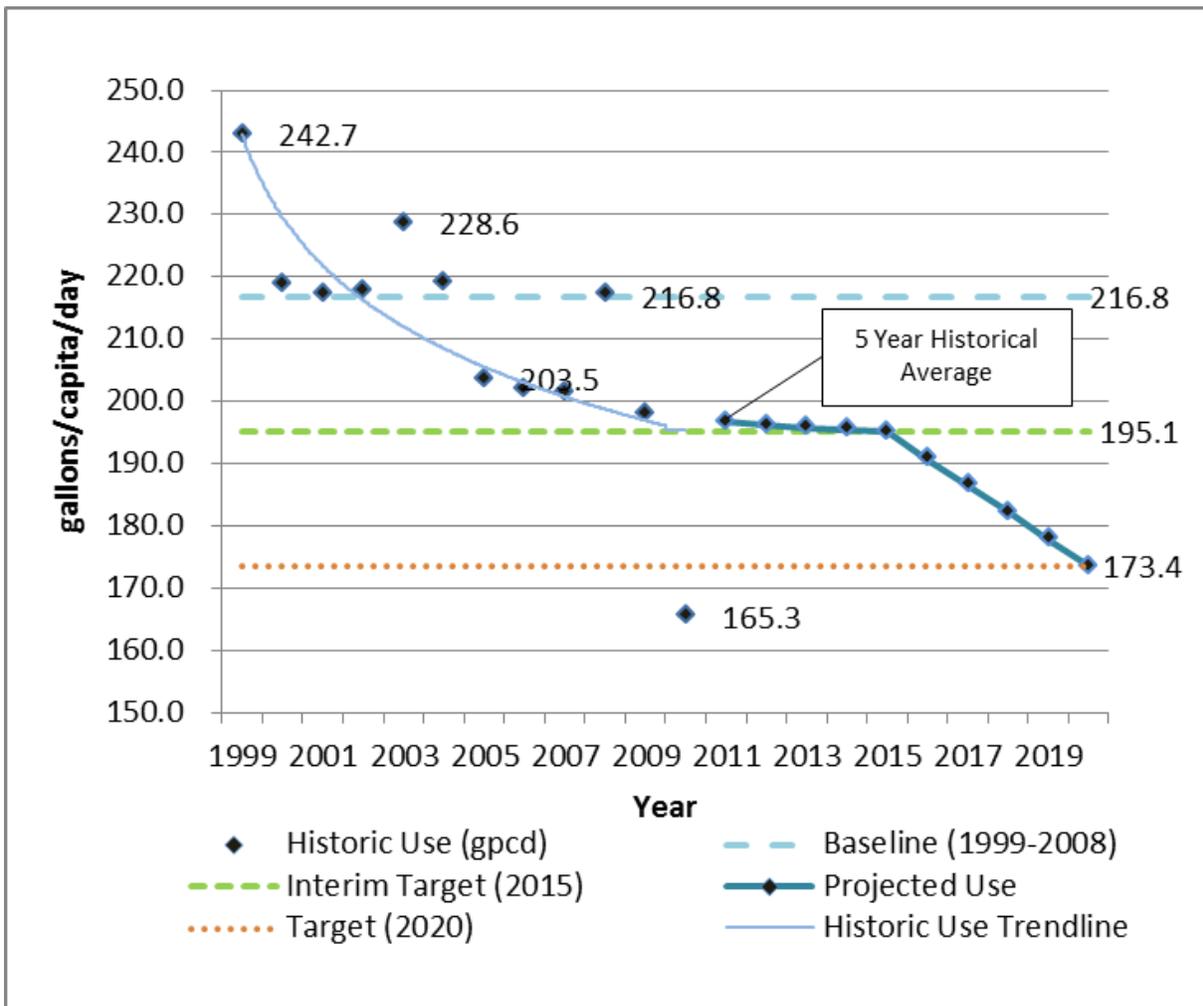


Figure 12. Historical Per Capita Water Use, Baseline, and Targets

6/27/2011

APPENDIX K. CPUC RULE 14.1



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838
amwater.com

July 1, 2009

Josie Babaran
California Public Utilities Commission
Tariff Unit, Water Division
505 Van Ness Ave., Room 3102
San Francisco, CA 94102-3298

Dear Ms. Babaran:

Enclosed please find an original and three copies of Advice Letter No. 772 being submitted for filing for California American Water Company.

Regards,

A handwritten signature in blue ink, appearing to read "Suzette Halterman".

Suzette Halterman
Financial Analyst I

Encl.

**CALIFORNIA PUBLIC UTILITIES
COMMISSION
DIVISION OF WATER AND
AUDITS
Advice Letter Cover Sheet**

(Date Filed / Received Stamp by CPUC)

AL # 772	Date Mailed to Service List: 7/1/09	Requested Effective Date: 7/1/09	Requested Tier: <input type="checkbox"/> Tier 1 <input checked="" type="checkbox"/> Tier 2 <input type="checkbox"/> Tier 3	
Replacing AL#:	Authorized by:	Compliance Filing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Rate Impact	\$ %

The public has 20 days from Date Mailed (above) to protest this advice letter. If you chose to protest or respond to the advice letter, send Protest and/or Correspondence within 20 days to:

Director
Division of Water and Audits
505 Van Ness Ave.
San Francisco, CA 94102

and if you have email capability, also email to: water_division@cpuc.ca.gov

Your protest also must be served on the Utility (see attached advice letter for more information and grounds for protest)

Company Name: CALIFORNIA AMERICAN WATER COMPANY	CPUC Utility Number: WTA: <u>U-210W</u> WTB _____ WTC _____ WTD _____ SWR _____
Address: 1033 B AVENUE , SUITE 200	
City, State, Zip: CORONADO, CA 92118	

	Contact Name:	Phone No.	Fax No.	Email Address:
Filer	Suzette Halterman	916-568-4255	916-568-4260	suzette.halterman@amwater.com
Alternate	Sherrene Chew	916-568-4233	916-568-4260	sherrene.chew@amwater.com

Description:
In this space or on the back of this form:

1. Explain justification for requested Tier –Submit revised Rule 14.1 (Southern Division)
2. Describe service affected and how it is affected – Southern California Districts – Coronado, Los Angeles, & Village
3. Describe differences from related Advice Letters (Similar service, replacement filing)

(FOR CPUC USE ONLY)			
WTS Budget/Activity/Type _____/_____/_____		Process as: <input type="checkbox"/> Tier 1 <input type="checkbox"/> Tier 2 <input type="checkbox"/> Tier 3	
		20th Day _____	30th Day _____
Project Manager:	_____	Suspended on: _____	
Analyst:	_____	Extended on: _____	
Due Date:	_____	Resolution No.: _____	
Completion Date:	_____	AL/Tariff Effective Date: _____	



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838
amwater.com

July 1, 2009

ADVICE LETTER NO. 772

TO THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

California-American Water Company (Applicant) (U210W) hereby submits for filing the following tariff sheets applicable to its Southern California (Coronado, Los Angeles, & Village) Districts which are attached hereto:

<u>C.P.U.C. Seet No.</u>	<u>Title of Sheet</u>	<u>Canceling Sheet No.</u>
5221-W	Rule No. 14.1-SD STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5222-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5223-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5224-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5225-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5226-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5227-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW

5228-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5229-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5230-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5231-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5232-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5233-W	Rule No. 14.1-SD (continued) STAGED WATER CONSERVATION PLAN SOUTHERN DIVISION	NEW
5234-W	Rule No. 14.1 WATER CONSERVATION AND RATIONING PLAN AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO	4982-W
5235-W	Rule No. 14.1 (continued) WATER CONSERVATION AND RATIONING PLAN AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO	4829-W
5236-W	Rule No. 14.1 (continued) WATER CONSERVATION AND RATIONING PLAN AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO	4830-W
5237-W	Rule No. 14.1 (continued) WATER CONSERVATION AND RATIONING PLAN AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO	4831-W

(4) The relief requested in the advice letter is pending before the Commission in a formal proceeding; or

(5) The relief requested in the advice letter requires consideration in a formal hearing, or is otherwise inappropriate for the advice letter process; or

(6) The relief requested in the advice letter is unjust, unreasonable, or discriminatory (provided that such a protest may not be made where it would require relitigating a prior order of the Commission.)

A protest shall provide citations or proofs where available to allow staff to properly consider the protest.

A response or protest must be made in writing or by electronic mail and must be received by the Water Division within 20 days of the date this advice letter is filed. The address for mailing or delivering a protest is:

Tariff Unit, Water Division, 3rd floor
California Public Utilities Commission,
505 Van Ness Avenue, San Francisco, CA 94102

water_division@cpuc.ca.gov

On the same date the response or protest is submitted to the Water Division, the respondent or protestant shall send a copy by mail (or e-mail) to us, addressed to:

David P. Stephenson
Manager – Rates & Regulation
4701 Beloit Drive
Sacramento, CA 95838
Fax: (916) 568-4260
E-Mail: dstephen@amwater.com

Cities and counties that need Board of Supervisors or Board of Commissioners approval to protest should inform the Water Division, within the 20 day protest period, so that a late filed protest can be entertained. The informing document should include an estimate of the date the proposed protest might be voted on.

If you have not received a reply to your protest within 10 business days, contact this person at (916) 568-4222.

CALIFORNIA AMERICAN WATER

 By JAA
David P. Stephenson
Director - Rates & Regulation

Rule No. 14.1-SD

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

(N, D)

A. TERRITORY

This rule is applicable within the Southern Division of California American Water Company, which includes the Coronado District, the Los Angeles District and the Village District. All others served by California American Water Company are excluded from this particular rule, but are included in separate and distinct Water Conservation and Plans.

B. GENERAL INFORMATION

1. The conservation program of this Rule will become applicable beginning the effective date of AL 772 and will remain in effect until such time that the Commission authorizes its de-activation. Mandatory conservation will only occur by Commission approval of a separate Tier 2 advice letter as outlined in Section E of this Rule.
2. A reliable minimum supply of potable water is essential to the public health, safety and welfare of the people and economy of the Southern California region.
3. Southern California is a semi-arid region and is largely dependent upon imported water supplies. A growing population, climate change, environmental concerns, and other factors in other parts of the State and western United States, make the region highly susceptible to water supply reliability issues.
4. Careful water management that includes active water conservation measures not only in times of drought, but at all times, is essential to ensure a reliable minimum supply of water to meet current and future water supply needs.
5. Article X, Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use; waste or unreasonable use or unreasonable method of use of water be prevented; and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof.
6. California Water Code section 375 authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.
7. The adoption and enforcement of a water conservation program is necessary to manage California American Water Company's Southern Division's potable water supply in the short and long-term and to avoid or minimize the effects of drought and shortage within California American Water Company's Southern Division's service areas. Such a program is essential to ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare.

(N, D)

(continued)

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 772

ISSUED BY

D. P. STEPHENSON

NAME

(TO BE INSERTED BY C.P.U.C.)

DATE FILED _____

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

TITLE

RESOLUTION NO. _____

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

B. GENERAL INFORMATION (Continued)

(N, D)

- 8. The purpose of this Rule is to establish a water conservation program that will reduce water consumption within California American Water Company's Southern Division's service area through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within California American Water Company's Southern Division's service area to avoid and minimize the effect and hardship of water shortage to the greatest extent possible.
- 9. This Rule establishes permanent water conservation standards intended to alter behavior related to water use efficiency at all times and further establishes three levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency, with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies..
- 10. Prior to declaration of mandatory conservation, a utility may request authorization of a Schedule 14.1 – Staged Mandatory Water Conservation tariff, via a Tier 2 advice letter.
- 11. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the staged mandatory conservation measures set forth in Sections E through H.
- 12. The utility shall file a Tier 1 advice letter to request activation of a particular stage of Schedule 14.1 – Staged Mandatory Water Conservation tariff.
 - a. If a Declaration of Mandatory Conservation is made by utility or governing agency, or
 - b. If the utility is unable to address voluntary conservation levels set by itself, supplier, or governing agency, or
 - c. If the utility chooses to subsequently activate a different stage.
- 13. When Schedule 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands in accordance with the permanent conservation requirements set forth in Section D, and mandatory conservation measures are no longer necessary, the utility shall seek Commission approval via a Tier 1 advice letter to deactivate the particular stage of mandatory conservation that had been authorized.
- 14. The utility shall make available to its customers water conservation kits as required by its version of Rule 20. The utility shall notify all customers of the availability of conservation kits via a bill insert or direct mailers.

(N, D)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED

NAME

EFFECTIVE

DECISION NO.

Director – Rates & Regulations

RESOLUTION NO.

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

(N, D)

C. DEFINITIONS

1. "Person" means any natural person or persons, corporation, public or private entity, governmental agency or institution, or any other user of water provided by the California American Water Company.
2. "Landscape irrigation system" means an irrigation system with pipes, hoses, spray heads, or sprinkling devices that are operated by hand or through an automated system.
3. "Large landscape areas" means a lawn, landscape, or other vegetated area, or combination thereof, equal to more than one (1) acre of irrigable land.
4. "Single pass cooling systems" means equipment where water is circulated only once to cool equipment before being disposed.
5. "Potable water" means water which is suitable for drinking.
6. "Recycled water" means the reclamation and reuse of non-potable water for beneficial use as defined in Title 22 of the California Code of Regulations.
7. "Billing unit" means the unit of water used to apply water rates for purposes of calculating water charges for a person's water usage and equals 100 cubic feet.
8. "Authorizing Agency" means any agency that supplies, controls or allocates the water supply to California American Water Company or any governmental body that authorizes the Company to produce and sell water in the service area, or California American Water Company itself if acting in accordance with Section G of this Rule.
9. "Historical base period" means the period of time established by an Authorizing Agency against which declared water use reductions are to be measured.

(N, D)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

(N, D)

D. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE

The following water conservation requirements are effective at all times until deactivation is authorized by the Commission. Violations of this section will be considered waste and an unreasonable use of water.

1. Limits on Watering Hours: Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 9:00 a.m. and 5:00 p.m. on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for the express purpose of adjusting or repairing an irrigation system.
2. Limit on Watering Duration: Watering or irrigating of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than fifteen (15) minutes watering per day per station. This subsection does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard.
3. No Excessive Water Flow or Runoff: Watering or irrigating of any lawn, landscape or other vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.
4. No Washing Down Hard or Paved Surfaces: Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume high-pressure water broom.
5. Obligation to Fix Leaks, Breaks or Malfunctions: Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected and in no event more than seven (7) days after receiving notice from California American Water Company, is prohibited.
6. Re-circulating Water Required for Water Fountains and Decorative Water Features: Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.
7. Limits on Washing Vehicles: Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This subsection does not apply to any commercial car washing facility.

(N, D)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director - Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

(N, D)

D. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE (continued)

The following water conservation requirements are effective at all times until de-activation is authorized by the Commission. Violations of this section are considered waste and an unreasonable use of water.

- 8. Drinking Water Served Upon Request Only: Eating or drinking establishments, including but not limited to a restaurant, hotel, cafe, cafeteria, bar, or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested. Establishments must prominently display notice of this option in each bathroom using clear and easily understood language.
- 9. Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services: Hotels, motels and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each bathroom using clear and easily understood language.
- 10. No Installation of Single Pass Cooling Systems: Installation of single pass cooling systems is prohibited in buildings requesting new water service.
- 11. No Installation of Non-re-circulating Water Systems in Commercial Car Wash and Laundry Systems: Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.
- 12. Restaurants Required to Use Water Conserving Dish Wash Spray Valves: Food preparation establishments, including but not limited to restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.
- 13. Use of potable water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public, is prohibited;
- 14. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used , is prohibited.
- 15. Use of potable water for construction purposes unless no other source of water or other method can be used, is prohibited;
- 16. Use of potable water for street cleaning, is prohibited;
- 17. Operation of commercial car washes without recycling at least 50% of the potable water used per cycle, is prohibited; and
- 18. Use of potable water to flush hydrants, except where required for public health or safety, is prohibited.

(N, D)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED

NAME

EFFECTIVE

DECISION NO.

Director - Rates & Regulations

RESOLUTION NO.

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

E. STAGED MANDATORY CONSERVATION OF WATER USAGE

(N)

- 1. Prior to declaration of mandatory conservation, a utility may request authorization of a Schedule 14.1 - Staged Mandatory Water Conservation tariff, via a Tier 2 advice letter, with full justification. The utility may not institute Schedule 14.1 until it has been authorized to do so by the Commission.
a. A staged Schedule 14.1 that has been authorized by the Commission shall remain dormant until triggered by specific conditions detailed in the Schedule 14.1 tariff and utility has requested and received authorization for activating a stage by Commission.
b. Notice of the Tier 2 advice letter (example shown in Appendix C) and associated public participation hearing shall be provided to customers under General Order (GO) 96-B rules.
c. Utility shall comply with all requirements of Sections 350-358 of the California Water Code.
d. The Tier 2 advice letter requesting institution of a Schedule 14.1 shall include but not be limited to:
i. Proposed Schedule 14.1 tariff, which shall include but not be limited to:
1. Applicability,
2. Territory applicable to,
3. A detailed description of each Stage of Conservation,
4. A detailed description of the Trigger that Activates each Stage of Conservation,
5. A detailed description of each water use restriction for each Stage of Conservation.
6. Water use violation levels, written warning levels, associated fines, and exception procedures,
7. Conditions for installation of a flow restrictor,
8. Charges for removal of flow restrictors, and
9. Special Conditions
ii. Justification for, and documentation and calculations in support of plan, including but not limited to each item in E.1.d.i above.
2. Number of Stages requested by each utility/district may vary, depending on specifics of water shortage event.
3. The utility shall file a Tier 1 advice letter to request activation of a particular stage of Schedule 14.1 - Staged Mandatory Water Conservation tariff.
a. If a Declaration of Mandatory Conservation is made by utility or governing agency,
b. If the utility is unable to address voluntary conservation levels set by itself or governing agency, or
c. If the utility chooses to subsequently activate a different stage.

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED

NAME

EFFECTIVE

DECISION NO.

Director - Rates & Regulations

RESOLUTION NO.

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

E. STAGED MANDATORY CONSERVATION OF WATER USAGE (continued)

(N)

- 4. The Tier 1 advice letter requesting activation of a Schedule 14.1 shall include but not be limited to:
 - a. Justification for activating this particular stage of mandatory conservation, as well as period during which this particular stage of mandatory conservation measures will be in effect.
 - b. When the utility requests activation of a particular Stage, it shall notify its customers as detailed in Section K, below.
- 5. All monies collected by the utility through water use violation fines shall not be accounted for as income.
- 6. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission.
 - a. These monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission.

F. STAGE 1 MANDATORY CONSERVATION

- 1. A Stage 1 Water Conservation exists when an Authorizing Agency determines that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions. Upon the declaration by an Authorizing Agency that water usage should be reduced by 10.01-20% of a historical base period, or that the Permanent Requirements in Section D are ineffective in complying with an Authorizing Agency reduction of 0-10% after three months, California American Water Company will implement the mandatory Stage 1 Conservation measures identified in this section, after authorized by the Commission.
- 2. Additional Water Conservation Measures: In addition to the prohibited uses of water identified in Section D, the following water conservation requirements apply during a declared Stage 1 Water Conservation:

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

F. STAGE 1 MANDATORY CONSERVATION (continued)

(N)

2. Additional Water Conservation Measures: (continued)

- a. Limits on Watering Days: Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to three days per week on a schedule established and posted by the California American Water Company. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one day per week on a schedule established and posted by the California American Water Company. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for the express purpose of adjusting or repairing an irrigation system.
- b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within seventy-two (72) hours of notification by California American Water Company unless other arrangements are made with California American Water Company.

G. STAGE 2 MANDATORY CONSERVATION

- 1. Stage 2 Water Conservation exists when an Authorizing Agency determines that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions. Upon the declaration by an Authorizing Agency that water usage should be reduced by 20.01-30% of an historical base period, or that the Measures in Sections D or F are ineffective in complying with an Authorizing Agency reduction of 10.01-20% after three months, or a reduction of 0-10% after six months, California American Water Company will implement the Stage 2 Mandatory Conservation measures identified in this section, after authorized by the Commission.
- 2. Additional Conservation Measures: In addition to the prohibited uses of water identified in Section D and F, the following additional water conservation requirements apply during a declared Stage 2 Water Conservation:
 - a. Watering Days: Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to two days per week on a schedule established and posted by California American Water Company. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one day per week on a schedule established and posted by California American Water Company. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

G. STAGE 2 MANDATORY CONSERVATION (continued)

(N)

2. Additional Conservation Measures: (continued)

- b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by the California American Water Company unless other arrangements are made with the California American Water Company.
c. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, and have been actively managed within the water feature prior to declaration of a supply shortage level under this Rule.
d. Limits on Washing Vehicles: Using water to wash or clean a vehicle, including but not limited to, any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, by high pressure/low volume wash systems, or at a commercial car washing facility that utilizes a re-circulating water system to capture or reuse water.
e. Limits on Filling Residential Swimming Pools & Spas: Re-filling and initial filling of residential swimming pools or outdoor spas with potable water is prohibited, except to maintain required operating levels of existing pools and spas.

H. STAGE 3 MANDATORY CONSERVATION

- 1. A Stage 3 Mandatory Conservation condition is also referred to as an "Emergency" condition. A Stage 3 condition exists when an Authorizing Agency declares a water shortage emergency or that water usage should be reduced by greater than 30% of an historical base period, or that the measures in Section D, F, or G are ineffective in complying with an Authorizing Agency reduction of 20.01-30% after three months, or a reduction of 10.01-20% after six months, or a reduction 0-10% after nine months. Upon the declaration of a Stage 3 Mandatory Conservation condition, California American Water Company will implement the mandatory Stage 3 conservation measures identified in this section, after authorized by the Commission.
2. Additional Conservation Measures: In addition to the prohibited uses of water identified in Section D, F, and G, the following water conservation requirements apply during a declared Stage 3 Mandatory Conservation:
a. No Watering or Irrigating: Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited. This restriction does not apply to the following categories of use, unless California American Water Company has determined that recycled water is available and may be applied to the use:

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED

NAME

EFFECTIVE

DECISION NO.

Director - Rates & Regulations

RESOLUTION NO.

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

H. STAGE 3 MANDATORY CONSERVATION (continued)

(N)

2. Additional Conservation Measures: (continued)

a. No Watering or Irrigating: (continued)

- i. Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self-closing water shut-off nozzle or device;
- ii. Maintenance of existing landscape necessary for fire protection;
- iii. Maintenance of existing landscape for soil erosion control;
- iv. Maintenance of plant materials identified to be rare or essential to the well-being of protected species;
- v. Maintenance of landscape within active public parks and playing fields, day care centers, golf course greens, and school grounds, provided that such irrigation does not exceed two (2) days per week according to the schedule established in Section D II(b)(1) and time restrictions in Section D (a) and (b)(1);
- vi. Actively irrigated environmental mitigation projects.

b. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within twenty four (24) hours of notification by California American Water Company unless other arrangements are made with California American Water Company.

c. No New Potable Water Service: Upon declaration of a Stage 3 Mandatory Conservation condition, no new potable water service will be provided, no new temporary meters or permanent meters will be provided for new service, and no statements of immediate ability to serve or provide potable water service (such as, will-serve letters, certificates, or letters of availability) will be issued, except under the following circumstances:

- i. A valid, unexpired building permit has been issued for the project; or
- ii. The project is necessary to protect the public health, safety, and welfare; or
- iii. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of California American Water Company.

This provision does not preclude the resetting or turn-on of meters to provide continuation of water service or the restoration of service that has been interrupted for a period of one year or less.

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

H. STAGE 3 MANDATORY CONSERVATION (continued)

(N)

2. Additional Conservation Measures: (continued)

d. Discontinue Service: California American Water Company may discontinue service to consumers who willfully violate provisions of this section in accordance with Rule No. 11.B.3.

e. No New Annexations: Upon the declaration of a Stage 3 Mandatory Conservation condition, California American Water Company will suspend consideration of annexations to its service area. This subsection does not apply to boundary corrections and annexations that will not result in any increased use of water.

I. ENFORCEMENT OF STAGED MANDATORY CONSERVATION

1. The water use restrictions of the conservation program, in Section D of this rule, become mandatory when the authorized Schedule 14.1-Staged Mandatory Conservation Program is triggered, the utility files a Tier 1 advice letter requesting activation of a particular stage, and authorization is received from the Commission.

a. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section D, F, G or H of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.

2. The utility may, after one verbal and one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section D, F, G or H above.

3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 3 Ccf/person/month. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.

4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.

5. Any tampering with flow restricting device by customer can result in fines or discontinuation of water use at the utility's discretion.

6. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service.

(N)

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED

NAME

EFFECTIVE

DECISION NO.

Director - Rates & Regulations

RESOLUTION NO.

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

I. ENFORCEMENT OF STAGED MANDATORY CONSERVATION (continued)

(N)

- 7. All monies collected by the utility through water use violation fines shall not be accounted for as income. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission. These additional monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission.
- 8. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

J. APPEAL PROCEDURE

- 1. Any customer who seeks a variance from any of the provisions of this water conservation plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request in writing.
- 2. Any customer not satisfied with the utility's response may file an appeal with the Division of Water and Audits of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission.
- 3. If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation plan.

K. PUBLICITY

- 1. As stated under Section E.1.b and c, when a utility requests authorization of a Schedule 14.1 – Staged Mandatory Water Conservation tariff, via a Tier 2 advice letter, it shall provide notice of the Tier 2 advice letter (example shown in Attachment C) and associated public meeting provided to customers, under General Order (GO) 96-B rules, and shall comply with all requirements of Sections 350-358 of the California Water Code (CWC), including but not limited to the following:
 - a. In order to be in compliance with both the GO and CWC, the utility shall provide notice via both newspaper and bill insert/direct mailing.
 - b. Utility shall file one notice for each advice letter filed, that includes both notice of the filing of the Tier 2 advice letter as well as the details of the public meeting (date, time, place, etc).
 - c. The public meeting shall be held after the utility files the Tier 2 advice letter, and before the Commission authorizes implementation of the tariff.
 - d. Utility shall consult with Division of Water and Audits staff prior to filing advice letter, in order to determine details of public meeting.

(continued)

(N)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1-SD (continued)

STAGED WATER CONSERVATION PLAN
SOUTHERN DIVISION

K. PUBLICITY (continued)

- 2. In the event that a Schedule 14.1-Staged Mandatory Plan is triggered, and a utility requests activation through the filing of a Tier 1 advice letter, the utility shall notify its customers and provide each customer with a copy of Schedule 14.1 by means of bill message or direct mailing. Notification shall take place prior to imposing any fines associated with this plan.
- 3. During the period that a stage of Schedule 14.1 is activated, the utility shall provide customers with updates in at least every other bill, regarding its water supply status and the results of customers' conservation efforts.

(N)

(N)

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 772

DECISION NO. _____

ISSUED BY

D. P. STEPHENSON

Director – Rates & Regulations

NAME

TITLE

(TO BE INSERTED BY C.P.U.C.)

DATE FILED _____

EFFECTIVE _____

RESOLUTION NO. _____

Rule No. 14.1

WATER CONSERVATION AND RATIONING PLAN
AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO

(N)

A. Territory

This rule is applicable to Customers within the Sacramento District and portions of the Monterey District not covered under a separate Rule 14.1 for the Monterey District (This rule is applicable to Toro, Ambler Park, Chular, and Ralph Lane service areas in the Monterey District.)

(C)

This rule does not cover Customers in the Monterey District that are covered under a separate Rule 14.1 (including Customers supplied by water from Carmel River System and Seaside Basin as well as the Laguna Seca Subarea which provides water for Customers within the Ryan Ranch, Hidden Hills, and Bishop systems). This rule does not cover Customer in the Southern Division Districts (Village, Coronado, and Los Angeles) which are covered under a separate Rule 14.1-SD and it does not cover Customers in the Larkfield District which are covered under a separate Rule 14.1-LK.

(C)

B. General Information

If water supplies are projected to be insufficient to meet normal customer demand, and are beyond the control of the utility, the utility may elect to implement voluntary conservation using the portion of this plan set forth in Section C of this Rule after notifying the Commission's Water Division of its intent. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the mandatory conservation and rationing measures set forth in Section D.

The Commission shall authorize mandatory conservation and rationing by approving Schedule No. 14.1, Mandatory Water Conservation and Rationing. When Schedule No. 14.1 has expired, or is not in effect, mandatory conservation and rationing measures will not be in force. Schedule No. 14.1 will set forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect.

When Schedule No. 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands, and mandatory conservation and rationing measures are no longer necessary, the utility shall seek Commission approval to rescind Schedule No. 14.1 to discontinue rationing.

In the event of a water supply shortage requiring a voluntary or mandatory program, the utility shall make available to its customers water conservation kits as required by Rule 21. The utility shall notify all customers of the availability of conservation kits.

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 772

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1 (continued)

WATER CONSERVATION AND RATIONING PLAN
AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO

(N)

C. Conservation – Non-Essential or Unauthorized Water Use

No customer shall use utility-supplied water for non-essential or unauthorized uses as defined below:

1. Use of water through any connection when the utility has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to make such repairs within 5 days after receipt of such notice.
2. Use of water which results in flooding or run-off in gutters, waterways, patios, driveway, or streets.
3. Use of water for washing aircraft, cars, buses, boats, trailers or other vehicles without a positive shut-off nozzle on the outlet end of the hose. Exceptions include washing vehicles at commercial or fleet vehicle washing facilities operated at fixed locations where equipment using water is properly maintained to avoid wasteful use.
4. Use of water through a hose for washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off or waste.
5. Use of water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public.
6. Use of water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
7. Use of water for more than minimal landscaping in connection with any new construction.
8. Use of water for outside plants, lawn, landscape, and turf areas more often than every other day, with even numbered addresses watering on even numbered days of the month and odd numbered addresses watering on the odd numbered days of the month, except that this provision shall not apply to commercial nurseries, golf courses and other water-dependent industries.

(continued)

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 772

ISSUED BY

D. P. STEPHENSON

NAME

(TO BE INSERTED BY C.P.U.C.)

DATE FILED _____

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

TITLE

RESOLUTION NO. _____

Rule No. 14.1 (continued)

WATER CONSERVATION AND RATIONING PLAN
AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO

(N)

C. Conservation – Non-Essential or Unauthorized Water Use (continued)

- 9. Use of water for watering outside plants, lawn, landscape and turf areas during certain hours if and when specified in Schedule No. 14.1 when the schedule is in effect.
- 10. Use of water for watering outside plants and turf areas using a hand-held hose without a positive shut-off valve.
- 11. Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water.
- 12. Use of water for the filling or refilling of swimming pools.
- 13. Service of water by any restaurant except upon the request of the patron.

D. Rationing of Water Usage

In the event the conservation measures required by Section A are insufficient to control the water shortage, the utility shall, upon Commission approval, imposed mandatory conservation and rationing. Rationing shall be in accordance with the conditions set forth in Schedule No. 14.1 as filed at the time such rationing is approved by the Commission.

Before mandatory conservation and rationing is authorized by the Commission, the utility shall hold public meetings and takes all other applicable steps required by Sections 350 through 358 of the California Water Code.

E. Enforcement of Mandatory Conservation and Rationing

- 1. The water use restrictions of the conservation program, in Section A of this rule, become mandatory when the rationing program goes into effect. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section A of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.

(continued)

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 772

ISSUED BY

D. P. STEPHENSON

NAME

(TO BE INSERTED BY C.P.U.C.)

DATE FILED _____

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

TITLE

RESOLUTION NO. _____

Rule No. 14.1 (continued)

WATER CONSERVATION AND RATIONING PLAN
AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO

(N)

E. Enforcement of Mandatory Conservation and Rationing (continued)

2. The utility may, after one verbal and one written warning, install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section C above.
3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow and shall provide the premise with a minimum of 6 Ccf/month. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.
4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.
5. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service.
6. Any monies collected by the utility through water use violation fines shall not be accounted for as income, but shall be accumulated by the utility in a separate account for disposition as directed or authorized from time to time by the Commission.
7. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

F. Appeal Procedure

Any customer who seeks a variance from any of the provisions of this water conservation and rationing plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request.

Any customer not satisfied with the utility's response may file an appeal with the staff of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission.

If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation and rationing plan.

(continued)

(TO BE INSERTED BY UTILITY)

ISSUED BY

(TO BE INSERTED BY C.P.U.C.)

ADVICE LETTER NO. 708

D. P. STEPHENSON

DATE FILED _____

NAME

EFFECTIVE _____

DECISION NO. _____

Director – Rates & Regulations

RESOLUTION NO. _____

TITLE

Rule No. 14.1 (continued)

WATER CONSERVATION AND RATIONING PLAN
AMBLER PARK, CHULAR, RALPH LANE, SACRAMENTO, AND TORO

(N)

G. Publicity

In the event the utility finds it necessary to implement this plan, it shall notify customers and hold public hearings concerning the water supply situation, in accordance with Chapter 3, Water Shortage Emergencies, Sections 350 to 358, of the California Water Code. The utility shall also provide each customer with a copy of this plan by means of billing inserts or special mailings; notification shall take place prior to imposing any fines associated with this plan. In addition, the utility shall provide customers with periodic updates regarding its water supply status and the results of customers' conservation efforts. Updates may be by bill insert, special mailing, poster, flyer, newspaper, television or radio spot/advertisement, community bulletin board, or other appropriate methods.

(TO BE INSERTED BY UTILITY)

ADVICE LETTER NO. 772

DECISION NO. _____

ISSUED BY

D. P. STEPHENSON

NAME

Director – Rates & Regulations

TITLE

(TO BE INSERTED BY C.P.U.C.)

DATE FILED _____

EFFECTIVE _____

RESOLUTION NO. _____

TABLE OF CONTENTS

The following listed tariff sheets contain all effective rates and rules affecting the charges and services of the Utility, together with other pertinent information:

<u>SUBJECT MATTER OF SHEET</u>	<u>C.P.U.C. SHEET NO.</u>	
TITLE PAGE	4107-W	
TABLE OF CONTENTS	5239-W, 5208-W, 5194-W 5240-W, 4981-W, 4046-W, 4617-W, 4618-W	(C) (C)
PRELIMINARY STATEMENTS	4957-W, 4144-W, 4958-W, 5183-W 4960-W, 5184-W, 5012-W, 5065-W 5164-W, 4965-W, 5070-W, 5120-W 5209-W, 5165-W, 5211-W, 5215-W 5217-W, 5219-W	
SERVICE AREA MAP		
California-American Water Company	4129-W	
Baldwin Hills	995-W, 996-W	
Coronado	2235-W	
Duarte	1633-W, 941-W, 942-W	
Larkfield	4313-W	
Monterey Peninsula	5040-W, 2740-W, 2741-W 2742-W, 5041-W, 2744-W 2745-W, 4315-W, 4293-W, 944-W, 945-W, 947-W/955-W, 957-W/964-W, 966-W/969-W, 971-W/984-W, 4042-W, 4043-W	
Sacramento	4133-W, 4530-W, 4529-W, 4136-W 4137-W, 4138-W, 4139-W, 4140-W 4141-W, 4142-W,	
San Marino	935-W/937-W, 513-W, 1986-W	
Village	2607-W	

(Continued)

(TO BE INSERTED BY UTILITY)	ISSUED BY	(TO BE INSERTED BY C.P.U.C.)
ADVICE LETTER NO. <u>772</u>	<u>D. P. STEPHENSON</u>	DATE FILED _____
DECISION NO. _____	DIRECTOR- RATES & REGULATION	EFFECTIVE _____
	TITLE _____	RESOLUTION NO. _____

TABLE OF CONTENTS (continued)

SUBJECT MATTER OF SHEET

C.P.U.C. SHEET NO.

SUMMARY OF CONTRACTS AND DEVIATIONS

Coronado	5004-W
Felton	4108-W
Montara	4109-W
Monterey	1975-W/1978-W, 2555-W
Los Angeles	2681-W
Sacramento	4110-W
Village	4244-W

RULES

No. 1	Definitions	1557-W, 1558-W
No. 2	Description of Service	898-W
No. 3	Application of Service	4429-W, 4430-W
No. 4	Contracts	1307-W
No. 5	Special Information Required of Forms	2948-W, 2949-W
No. 6	Establishment & Reestablishment of Credit	285-W
No. 7	Deposits	2812-W
No. 8	Notices	2465-W, 2466-W
No. 9	Rendering and Payment of bills	2813-W, 2814-W
No. 10	Disputed Bills	2950-W
No. 11	Discontinuance & Restoration of Service	2951-W/2954-W, 4532-W, 4463-W 2956-W
No. 12	Information Available to the Public	4028-W
No. 13	Temporary Service	2958-W
No. 14	Continuity of Service	1835-W
No. 14.1	Water Conservation Plan	2933-W/2941-W, 5234-W, 5235-W (C) 5236-W, 5237-W, 5238-W (C)
No. 14.1-SD	Water Conservation Plan – Southern Division	5221-W, 5222-W, 5223-W, 5224-W, (N) 5225-W, 5226-W, 5227-W, 5228-W, (N) 5229-W, 5230-W, 5231-W, 5232-W, (N) 5233-W (N)
No. 14.2	Voluntary Water Conservation Plan	2959-W
No. 15	Main Extensions	2960-W/2964-W, 4149-W, 5093-W 2966-W/2968-W, 3080-W
No. 16	Service Connections, Meters and Customers' Facilities	2969-W/2974-W
No. 17	Measurement of Service	1543-W
No. 18	Meter Tests and Adjustment Bills for Meter Error	2975-W, 2976-W
No. 19	Service to Separate Premises and Multiple Units and Resale	2977-W
No. 20	Fire Protection	323-W
No. 21	Water Conservation	1206-W
No. 22	The Military Family Financial Relief Act	4395-W, 4396-W

(continued)

(TO BE INSERTED BY UTILITY)
ADVICE LETTER NO. 772

ISSUED BY
D. P. STEPHENSON

(TO BE INSERTED BY C.P.U.C.)
DATE FILED

DECISION NO.

NAME
RATES & REGULATION MANAGER

EFFECTIVE
RESOLUTION NO.

TITLE

CALIFORNIA AMERICAN WATER COMPANY
ADVICE LETTER 772
LOS ANGELES, CORONADO, AND VILLAGE SERVICE LIST
EXHIBIT A

City of Monterey
City Hall
Monterey, CA 93940
Attn: City Clerk

Residents Water Committee
27195 Meadows Road
Carmel, CA 93923
Attn: Pat Bernardi

Ross G. Hubbard
City of Pacific Grove
c/o City Manager's Office
300 Forest Ave, 2nd floor
Pacific Grove, CA 93950

Karen Crouch
City Clerk,
Carmel-By-The-Sea
PO Box CC
Carmel-by-the-Sea, CA 93921

City of Sand City
City Hall
California & Sylvan Avenues
Sand City, CA 93955
Attn: City Clerk

City of Seaside
City Hall
440 Harcourt Avenue
Seaside, CA 93955
Attn: City Clerk

Monterey Peninsula Water Mgmt Dist.
P.O. Box 85
Monterey, CA 93942
Attn: Mr. Ray Millard

Darlene Drain
County Clerk
County of Monterey
P.O. Box 1728
Salinas, CA 93902

City of Del Rey Oaks
City Hall
650 Canyon Del Rey Road
Del Rey Oaks, CA 93940
Attn: City Clerk

Fort Ord Reuse Authority
100 12th Street, Bldg 2880
Marina, CA 93922

Alco Water Service
249 Williams Road
Salinas, CA 93901

Hoge, Fenton, Jones, & Appel, Inc.
P.O. Box 791
Monterey, CA 93942
Attn: Thomas H. Jamison
Attn: Ronald F. Scholl

Pebble Beach Company
P.O. Box 1767
Pebble Beach, CA 93953
Attn: Mark Stilwell

Sung Han
California Public Utilities Commission
Room 3200
505 Van Ness Avenue
San Francisco, CA 94102

Richard Andrews
General Manager
Pebble Beach Community Svcs. District
Forest Lake and Lopez Roads
Pebble Beach, CA 93953

Administrative Law Judge Christine
Walwyn
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Monica L. McCrary
California Public Utilities Commission
Legal Division, Room 5134
505 Van Ness Avenue
San Francisco, CA 94102

Miriam L. Stompler
Attorney at Law
County of Santa Cruz
701 Ocean Street, Room 505
Santa Cruz, CA 95060

Harriet Burt
California Public Utilities Commission
Public Advisor Office, Room 2103
505 Van Ness Avenue
San Francisco, CA 94102-3214

Fred L. Curry
California Public Utilities Commission
Water Advisory Branch, Room 3106
505 Van Ness Avenue
San Francisco, CA 94102-3214

Diana Brooks
California Public Utilities Commission
Room 4102
505 Van Ness Avenue
San Francisco, CA 94102-3214

Frances M. Farina
Attorney at Law
389 Princeton Avenue
Santa Barbara, CA 93111

Ronald J Lundquist, P.E.
Deputy Pub Works Director – Operations
Monterey County DPW
168 W. Alisal Street, 3rd floor
Salinas, CA 93901-2680

David C. Laredo
Attorney at Law
DeLay & Laredo
606 Forest Ave
Pacific Grove, CA 93950

David A McCormick
Department of Defense
901 N. Stuart Street Rm 700
Arlington, VA 22203-1837

Mark Bumgardner
California Public Utilities Commission
Division of Ratepayer Advocates
505 Van Ness Avenue
San Francisco, CA 94102

Rami Kahlon
California Public Utilities Commission,
Water Division
505 Van Ness Avenue
San Francisco, CA 94102

CALIFORNIA AMERICAN WATER COMPANY
ADVICE LETTER 772
LOS ANGELES, CORONADO, AND VILLAGE SERVICE LIST
EXHIBIT A

Jose E. Guzman JR.
Attorney At Law
Nossaman, Guthner, Knox & Elliot, LLP
50 California Street, 34th Floor
San Francisco, CA 94111-4799

City of Pacific Grove
City Attorney
300 Forest Ave 2nd floor
Pacific Grove, CA 93950

Lloyd Lowery Jr.
Noland, Hammerly, Etienne & Hoss P.C.
333 Salinas St
PO Box 2510
Salinas, CA 93902-2510

Thomas Jamison
Fenton & Keller, P.C.
2801 Monterey Salinas Highway
Po Box 791
Monterey, CA 93942

Edward W. O'Neill
Davis Wright Tremaine LLP
505 Montgomery Street
San Francisco, CA 94111-6533

Jeffrey P. Gray
Davis Wright Tremaine LLP
505 Montgomery Street
San Francisco, CA 94111-6533

Carmel Area Wastewater District
3945 Rio Road
Carmel, CA 93923

Monterey Regional Water Pollution Control
Agency (MRWPCA)
5 Harris Court Road. Bldg D.
Monterey, CA 93940

Marc J. Del Piero
4062 El Bosque Drive
Pebble Beach, CA 93953-3011

Danilo Sanchez
California Public Utilities Commission,
DRA
505 Van Ness Avenue
San Francisco, CA 94102

Michael Depaul
Noland, Hamerly, Etienne & Hoss
333 Salinas Street
Salinas, CA 93902-2510

Darryl D. Kenyon
Monterey Commercial Property Owners
Association
P.O. Box 398
Pebble Beach, CA 93953

Virginia Hennessey
Monterey County Herald
P.O. Box 271
Monterey, CA 93942

Gary E. Hazelton
County Clerk – Recorder
Santa Cruz County
701 Ocean Street, Room 210
Santa Cruz, CA 95060

Tanya A. Gulesserian
Adams Broadwell Joseph & Gardoza
601 Gateway Blvd, Suite 1000
South San Francisco, CA 94080

California Dept of Health Services
Division of Drinking Water &
Environmental Management
PO Box 997416
Sacramento, CA 95899-7413

Robin Tokmakian
League of Women Voters
252 Chestnut
Pacific Grove, CA 93950

Robert M. Kittle
Department of Defense
901 N. Stuart Street Rm 700
Arlington, VA 22203-1837

Paul Angelopulo
Attorney at Law
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Irvin L. Grant
Deputy County Counsel
County of Monterey
168 W. Alisal Street, 3rd floor
Salinas, CA 93901-2680

Laura L. Krannawitter
California Public Utilities Commission
Executive Division, Rm 5303
505 Van Ness Avenue
San Francisco, CA 94102

Vanessa W. Vallarta
City Attorney
City of Salinas
200 Lincoln Avenue
Salinas, CA 93901

Don Freeman
City of Seaside
City Attorney
440 Harcourt Avenue
Seaside, CA 93955

Donald G. Freeman
City Attorney
City of Carmel-By-The-Sea
PO Box 805
Carmel-by-the-Sea, CA 93921

Lori Ann Dolqueist
Attorney At Law
Manatt, Phelps & Phillips, LLP
One Embarcadero Center, 30th Floor
San Francisco, CA 94111

Sarah Leeper
Manatt, Phelps & Phillips, LLP
One Embarcadero Center 30th Floor
San Francisco, CA 94111

Ann Camel
City Clerk
City of Salinas
200 Lincoln Avenue
Salinas, CA 93901

CALIFORNIA AMERICAN WATER COMPANY
ADVICE LETTER 772
LOS ANGELES, CORONADO, AND VILLAGE SERVICE LIST
EXHIBIT A

Jim Heisinger
P.O. Box 5427
Carmel, CA 93921

William Conners
City of Monterey
City Attorney
399 Madison Street
Monterey, CA 93940

Gerard A. Rose
PO Box 5427
Carmel, CA 93921

Dr. Darnell Whitt
P.O. Box 8702
Monterey, CA 93943-8702

George Riley
Citizens for Public Water
1198 Castro Road
Monterey, CA 91940

Los Angeles Docket Office
California Public Utilities Commission
320 West 4th Street, Suite 500
Los Angeles, CA 90013

Bernardo R. Garcia
Region 5 Director
Utility Workers Union of America
215 Avenida Del Mar, Suite M
San Clemente, CA 92674-0037

David Alderson
Richrads Watson Gershon
44 Montgomery, Suite 3800
San Francisco, CA 94101

David P. Stephenson
California American Water
4701 Beloit Drive
Sacramento, CA 95838

John K. Hawks
Executive Director
California Water Association
601 Van Ness Avenue, Suite 2047
San Francisco, CA 94102-3200

Lenard G. Weiss
Attorney At Law
Manatt, Phelps & Phillips, LLP
One Embarcadero Center, 30th Floor
San Francisco, CA 94111

Marcelo Poirier
California Public Utilities Commission,
Legal Division, Rm 5025
505 Van Ness Avenue
San Francisco, CA 94102

Maxine Harrison
California Public Utilities Commission
Executive Division
320 West 4th Street Suite 500
Los Angeles, CA 90013

Marcus Nixon
Asst. Public Advisor
320 W. 4th Street, Suite 500
Los Angeles, CA 90013

Los Angeles Docket Office
California Public Utilities Commission
320 West 4th Street, Suite 500
Los Angeles, CA 90013

Ventura County Waterworks District
7150 Walnut Canyon Road
P.O. Box 250
Moorpark, CA 93020

Jose Cabrera
California Public Utilities Commission
Water Branch, Area 3-B
505 Van Ness Avenue
San Francisco, CA 94102

Jay T. Spurgin, PE
City Engineer
City of Thousand Oaks
2100 Thousand Oaks Blvd
Thousand Oaks, CA 91363

City of Thousand Oaks Water Dept.
2100 E. Thousand Oaks Blvd.
Thousand Oaks, CA 91362

Linda Rochester
California Public Utilities Commission
Div. of Admin. Law Judges, Rm 5024
505 Van Ness Avenue
San Francisco, CA 94102

Dana Appling
California Public Utilities Commission
Water Branch, Area 3-B
505 Van Ness Avenue
San Francisco, CA 94102

California Water Service
P.O. Box 49062
San Jose, CA 95161-9062

County of Ventura
800 South Victoria Avenue
Ventura, CA 93009

City of Camarillo
601 Carmen Drive
Camarillo, CA 93010

APPENDIX L. SGA WATER ACCOUNTING FRAMEWORK

RESOLUTION NO. 10-03

A RESOLUTION OF THE SACRAMENTO GROUNDWATER AUTHORITY APPROVING AND ADOPTING THE WATER ACCOUNTING FRAMEWORK PHASE III EFFORT

Whereas, in April 2000, representatives from a diverse group of 40 stakeholder organizations executed the historic Sacramento Area Water Forum Agreement (WFA);

Whereas, the two co-equal objectives of the Water Forum Agreement are (a) providing a reliable and safe water supply for the region's economic health and planned development through the year 2030, and (b) preserving the fishery, wildlife, recreational, and aesthetic values of the Lower American River;

Whereas, a key element of the WFA is a regional program to manage and conjunctively use groundwater and surface water to help meet water supply needs through the year 2030, while reducing diversions from the Lower American River during environmentally sensitive times;

Whereas, the Sacramento Groundwater Authority (SGA) was formed in 1998 through the Water Forum process to manage the groundwater resources of the North Area Basin;

Whereas, the mandate and mission of the SGA is to actively manage groundwater to (a) maintain the long-term sustainable yield of the North Area Basin and (b) facilitate implementation of an appropriate conjunctive use of surface water and groundwater program in the North Area Basin;

Whereas, individual water purveyors within the North Area Basin have made significant investments in infrastructure and operational improvements and conjunctive use, which have resulted in improvements in groundwater basin conditions;

Whereas, SGA adopted an updated Groundwater Management Plan (GMP) in December 2008 in furtherance of its mandate and mission;

Whereas, SGA desires to create a means to further carry out and implement its groundwater management and conjunctive use mandate, by developing an institutional framework through which current and future investments in conjunctive use infrastructure and operations will be recognized and encouraged;

Whereas, the SGA and its member agencies have undertaken to develop and implement a Water Accounting Framework (Framework);

Whereas, the Framework is a critical element of the SGA's mandate and mission under the WFA;

Whereas, the Framework does not authorize nor require any investments or improvements in infrastructure or operations, and any such activities are not part of this Framework and would require appropriate environmental review;

Whereas, the Framework involves basic data collection, research and resource evaluation activities, which will not result in any serious or major disturbances to any environmental resources;

Whereas, these activities may be used as part of guidelines leading to groundwater banking and monitoring programs, but such additional programs have not yet been scoped, approved, adopted, or funded;

Whereas, the Framework will serve to further develop information and data for the purpose of maintaining, restoring, enhancing, and protecting groundwater and related environmental and natural resources in the North Area Basin;

Whereas, a voluntary approach to maintaining the long term sustainability of the North Area Basin is appropriate at this time based on currently available information.

Now, Therefore, the SGA Board of Directors Hereby Finds and Resolves as Follows:

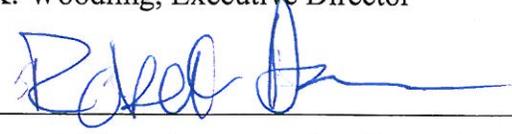
1. The Framework (a) is an appropriate means to further carry out and implement the SGA's groundwater management and conjunctive use mandate; (b) will protect and encourage investment in conjunctive use infrastructure and operations by member purveyors; and (c) is in the best interest of water users and the health of regional groundwater resources as a whole.
2. SGA will work with and assist water managers in adjacent areas that share the same groundwater basin, and will coordinate SGA's groundwater management efforts to facilitate, to the extent practicable, consistent and coordinated regional groundwater planning and management.
3. Approval of this Framework is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines 15306, 15307, and 15308. To the extent that specific projects are developed or proposed as a result of this Framework, SGA and the participating purveyors will comply with CEQA as necessary.
4. Within five years of adoption of this Framework, SGA will evaluate groundwater conditions and review and/or modify the Framework to ensure that it satisfies the objective of sustaining the groundwater basin, and does so in an equitable manner.

5. The Board of Directors of the SGA hereby approves and adopts the Water Accounting Framework Phase III Document as a policy of the SGA.

PASSED AND ADOPTED by the Board of Directors, at their regular board meeting, on the 10th of June, 2010.

By: 
Chair

Attest: 
John K. Woodling, Executive Director


SGA Legal Counsel, Approved subject to form

SACRAMENTO GROUNDWATER AUTHORITY

WATER ACCOUNTING FRAMEWORK
PHASE III EFFORT

June 10, 2010

Table of Contents

Introduction	1
Background	1
Framework Principles	2
Banking and Exchange Principles	6
Model Groundwater Banking Program Elements	8
Roles Under Phase III of the Framework	14
Exhibit 1	16
Exhibit 2	18
Exhibit 3	20

Sacramento Groundwater Authority

Water Accounting Framework

Phase III Effort

I. Introduction

The Water Accounting Framework (Framework) establishes a set of policies and procedures that will encourage and support conjunctive use operations within the Sacramento Groundwater Authority (SGA) area of jurisdiction to facilitate the long-term sustainability of the underlying groundwater basin as source of public water supply. The Framework recognizes investments by the SGA member agencies in the development of conjunctive use programs and supports groundwater banking programs that enhance the long-term sustainability of the groundwater basin.

II. Background

In June 2007, the SGA Board adopted Phase II of the Framework for the SGA area. Phase II established that SGA would maintain an ongoing record of groundwater banking and withdrawal activities within the SGA area, maintain necessary groundwater management tools (e.g., groundwater model, monitoring wells, etc.), and coordinate with regional stakeholders as necessary to communicate essential information regarding banking and withdrawal activities. Phase II also directed staff to develop a Model Groundwater Banking Program (MGBP) for use by SGA member agencies should they choose to implement a groundwater banking program that would result in transfers of water outside the SGA area.

At the direction of the MGBP Oversight Committee and the SGA Board, three additional elements were proposed in addition to the MGBP itself. The following four Framework components are described in this Phase III document:

- A. principles that reflect current understanding of the underlying groundwater basin¹ and existing management practices, including basin sustainability goals, as a foundation of the Framework;

¹ The basin as referenced here is the groundwater basin underlying the SGA management area, which includes Sacramento County north of the American River.

- B. standardized methodology for determining the volume of water available for banking and withdrawal operations under the framework;
- C. elements of an MGBP for agencies proposing groundwater exchanges under the Framework; and
- D. specific roles and responsibilities of SGA staff, the SGA Board, and member agencies in implementation of the Framework.

This Framework is intended to provide guidance to SGA member agencies on voluntary actions to help ensure the long-term sustainability of groundwater resources in the SGA area. It is not intended to restrict or limit the access to groundwater of any individual or agency.

III. Framework Principles

Based on current understanding of the underlying groundwater basin and existing groundwater management practices, the following principles are generally applicable within the SGA area. Specific principles are applicable to three sub-units (central, eastern, western) of the SGA area as listed below.

- A. To ensure the long-term sustainability of the groundwater basin underlying the SGA area, SGA should establish a basin sustainability² goal for each sub-unit.
- B. Achievement of basin sustainability goals can be met by agencies through either direct implementation (e.g., conjunctive use operations, conservation measures, etc.) or indirect means (e.g., purchase credits).
- C. Basin sustainability goals developed for this Framework should be pursued as feasible for each agency. In evaluating whether an agency is progressing toward meeting its sustainability goal, the availability of water, costs, significant water conservation that offsets groundwater extraction, and other factors affecting feasibility shall be taken into account.
- D. Basin sustainability goals established through the Framework do not include consideration of impacts associated with known or unknown contaminants. Putting to beneficial use any water from contaminant plume remediation shall be recognized as beneficial to the basin and shall not be assessed against an agency's basin sustainability goal.

² Sustainability as used here is the planned use of a resource in a manner such that the resource is not depleted or damaged through time.

- E. Basin sustainability goals will not be developed for agricultural and other self-supplied groundwater users at this time.
- F. This Framework and basin sustainability goals will be reviewed at least every five years to evaluate their effectiveness and equitable application among the participating agencies.
- G. Agencies interested in participating in a banking and exchange program with a party outside the SGA area will submit a plan for operation to demonstrate that the exchange will not adversely impact the sustainability of the groundwater basin or negatively impact Framework objectives.
- H. A proposed exchange arrangement resulting from this Framework should honor contracts within the region as the highest priority.
- I. The SGA area is set up as three discrete operating units (central, eastern, and western units), each with unique hydrogeology and water use characteristics. These units were previously described in the SGA Groundwater Management Plan and Basin Management Report (see Figure in Exhibit 1).

1. Central Unit

- a) A cone of depression has developed in the central portion of the SGA area (Central Unit) as a result of historic reliance on groundwater as the primary source of water by agencies within the Central Unit.
- b) The Central Unit agencies have a common interest in maintaining the sustainability of the basin and share responsibility for implementing programs to stabilize groundwater elevations.
- c) Central Unit agencies should implement measures to ensure the groundwater basin is sustainable.
- d) The initial sustainable pumping estimate, i.e., the estimated volume that can be pumped from the central portion of the basin while maintaining a stable groundwater elevation, is presented in Table 1 . This estimate of 90,000 ac-ft is based on an analysis in the Central Unit as of 2004. It is not intended that this be a fixed number, and may change over time with continued monitoring of water levels, pumping amounts and locations, new facilities, and future operational changes. It is also not intended to limit the amount of groundwater that an agency can extract to meet its service area water supply demands.
- e) The proportion of total annual groundwater use within the Central Unit by each of the overlying agencies nearest the time of

formation of SGA has been determined to be an appropriate basis for assignment of an annual basin sustainability goal. The average extractions for the five-year period 1993 through 1997 are deemed to be representative of the highest level of groundwater extraction from the Central Unit by the various agencies pumping from the Central Unit. This pumping totaled 101,784 ac-ft, as presented in Table 1 (See Exhibit 2). There have been no significant increases in groundwater extraction since that time.

d) The initial basin sustainability goal of 11,784 acre-feet for the Central Unit represents an average annual goal for reduction in groundwater extractions from this portion of the basin, which will contribute to stabilizing groundwater levels. Table 1 identifies the average extraction by each agency in the Central Unit for the period 1993 through 1997. Based on the each agency's relative groundwater extraction during this period, each agency is assigned a basin sustainability goal (expressed as a pumping target). This goal may be revised based on future observations of groundwater conditions or changing future demands. Member agencies will voluntarily identify programs by which they propose to meet these goals. While SGA promotes basin sustainability through a conjunctive use³ program, the SGA Board shall not unreasonably withhold endorsement of alternative programs.

e) Attainment of basin sustainability goals for each agency will be required for SGA's endorsement of banking and exchange programs in which water is exported from the SGA area.

f) Central Unit agencies will endeavor to attain their respective basin sustainability goals beginning in calendar year 2012.

2. Eastern Unit

a) Past groundwater extractions by agencies overlying the eastern portion of the SGA area (Eastern Unit) have been comparatively low, averaging approximately 1,300 acre-feet per year from 1998 through 2008. The SGA Board recognizes that this nominal past pumping has benefited the groundwater basin as compared to conditions that would exist if water demands in the Eastern Unit had been met with groundwater from the SGA area.

³ Conjunctive use as referred to in this document is maximizing operational capacity to utilize either surface water or groundwater as a source of supply. Surface water is used preferentially during wet periods, while groundwater is used preferentially in dry periods.

b) Additional groundwater pumping by these agencies may be needed in certain years to achieve environmental goals and maintain flows in the American River watershed. The agencies in the Eastern Unit estimate that they would use groundwater to meet overlying demand as follows: up to 3,000 acre-feet per year when inflow⁴ to Folsom Reservoir is above 950,000 acre-feet; up to 9,000 acre-feet per year when inflow to Folsom Reservoir is less than 950,000 acre-feet but greater than 400,000 acre-feet; up to 18,000 acre-feet per year when inflow to Folsom Reservoir is at or below 400,000 acre-feet.

c) As a result of current and past practices, and the current water supply systems in place in the Eastern Unit, the Eastern Unit has not been assigned a basin sustainability goal at this time. However, groundwater pumping in excess of the amounts identified in part 2b above, which results in an exchange of water outside the SGA area, should include a plan to mitigate impacts resulting from the increased groundwater use (e.g., expanding conjunctive use to import additional surface water in wet periods).

d) The planned groundwater pumping identified in part 2b above does not include consideration of potential shortage conditions resulting from cutbacks of Federal water project deliveries or other shortage conditions within the San Juan Wholesale Area. Additional pumping during these conditions is not subject to mitigation planning identified in Part 2c above.

e) The planned groundwater pumping identified in part 2b above does not include consideration of impacts associated with known and unknown contaminants in groundwater. Current and future pumping associated with remediation efforts in the Eastern Unit is not subject to mitigation planning identified in part 2c above.

f) The pumping amounts identified above will be evaluated not later than five years from the date of adoption.

3. Western Unit

a) The Western Unit historically has relied almost exclusively on surface water for supply. Groundwater pumping has been primarily by independent pumpers, and no significant impacts to the groundwater basin have been observed.

⁴ This is the calculated unimpaired inflow to Folsom Reservoir for March through November as presented in Department of Water Resources Bulletin 120.

- b) As a result of current and past practices, and the current water supply systems in place in the Western Unit, the Western Unit has not been assigned a basin sustainability goal at this time.
- c) The geology of the Western Unit is characterized by finer-grained flood basin deposits associated primarily with the Sacramento River. As a consequence of this geologic structure, additional pumping could result in significant drawdown of groundwater elevations. Groundwater pumping in the Western Area, therefore, should include an appropriate monitoring and mitigation program.

IV. Banking and Exchange Principles

Determining the Volume of Water Available for Exchanges Outside of the SGA Area.

The quantity of water available for exchange will be based upon a variety of factors, including the effective date on which the project participant is awarded banked water credits, how much water can be demonstrated to have been banked, and the quantity of banked water that should remain in the basin to mitigate against any unforeseen impacts (referred to as the “basin mitigation factor”) or to meet an agency’s sustainability goal.

A. **Effective Date** – the SGA⁵ was formed in August 1998. The SGA Joint Powers Agreement (JPA) cites the following purposes for establishing SGA: 1) to maintain the long-term sustainable yield of the North Area Basin; and 2) to manage the use of groundwater in the North Area Basin and facilitate implementation of an appropriate conjunctive use program by water purveyors. Given that these foundational purposes are linked to the formation of SGA, it is recommended that water available for exchange operations under the program managed by SGA should include documented banked water dating back to August 1998.

B. **Exchangeable Water Balance** – while the intent of the banking program is to recognize investment in conjunctive use operations in the basin, it is important to consider the commitment needed to ensure the sustainability of the underlying groundwater basin for future beneficial uses. A significant cone of depression developed in the Central Unit of the basin is a potential threat to basin sustainability if not managed. Therefore, water available for banking and exchange through this program should be a quantity of water over and above that needed to stabilize groundwater elevations in the basin. In 2006, SGA conducted a study of water agencies that were historically reliant on groundwater for supply in the Central Unit overlying the cone of depression. That study determined that an annual average reduction of

⁵ SGA was initially formed as the Sacramento North Area Groundwater Management Authority (SNAGMA) on August 1, 1998. The organization’s name was changed to SGA through an amendment of the joint powers agreement on May 7, 2002.

groundwater extraction of 11,784 acre-feet from the average extraction from 1993 through 1997 would result in stable groundwater elevations in the Central Unit. The study also estimated the responsibility of each agency to attain this target, based on their historical use. For agencies in the Central Unit, the initial amount of exchangeable water will be calculated as:

For the period August 1, 1998 through December 31, 2011, the amount of documented banked water will include the volume of surface water put to beneficial use within the Central Unit above baseline levels of surface water use during or prior to the period 1993 through 1997.

Beginning January 1, 2012, exchangeable water in a given year will be calculated as:

The volume of surface water put to beneficial use within the Central Unit in excess of the amount necessary to offset groundwater extraction to meet the agency's respective basin sustainability goal. The annual exchangeable water will be added to the exchangeable water balance on an annual basis.

There is currently no methodology for accurately determining savings from conservation efforts as a component of water supply⁶. While water conservation efforts will help an agency meet its basin sustainability goal (by reducing pumping), conserved water will not be included as net banked water for purposes of banking and exchange from the SGA area at this time.

For agencies in the Eastern and Western units, the amount of exchangeable water will be individually determined by the SGA Board, based on records of surface and groundwater use and observations of groundwater elevations.

C. Basin Mitigation Factor – In 2009, SGA completed an analysis using the Sacramento County Integrated Groundwater and Surface Water Model to determine the fate of water banked in the basin. The simulation included banking of nearly 150,000 acre-feet of water from actual in-lieu recharge operations in the basin from 1998 through 2008. The model demonstrated that banked groundwater generally remains within the operational control of SGA member agencies (i.e., the banked groundwater did not flow out of the groundwater basin). These results generally reflect the significant cone of depression in the Central Unit of the SGA area.

Notwithstanding the foregoing, the SGA Board proposed a conservative approach to basin losses to ensure that banking and exchange programs are consistent with other

⁶ DWR has been tasked with developing a method for correcting annual demand data to reflect changes in annual climatic conditions in 2010, which may help better identify water savings associated with conservation efforts.

basin sustainability objectives in the Framework. The Framework, therefore, assigns a basin mitigation factor to exchanges outside of the basin to protect against negative impacts of the loss of this resource and to help recovery of the cone of depression in the basin. SGA will assess a 5% reduction to water banked on behalf of agencies from outside the SGA area that is subsequently exchanged outside the SGA area or substituted for surface water that will be exchanged. The basin mitigation factor will be applied during the withdrawal phase of the banking and exchange operation. SGA will work with agencies that participate in banking and exchange programs to develop and implement the basin mitigation factor as warranted by the specific circumstances of each transaction.

D. Use of Banked Water to Meet Basin Sustainability Goal – An agency with a positive exchangeable water balance may reduce its balance and apply the credit toward meeting its basin sustainability goal.

E. Transfer of banked water credits - An agency with both a positive exchangeable water balance and a positive basin sustainability balance may transfer exchangeable water credits to another agency in the basin. The receiving agency may apply the credit to either its exchangeable water or basin sustainability balance.

F. Attainment of the basin sustainability goal (i.e. maintaining a positive basin sustainability balance), as well as maintenance of a positive balance of exchangeable water will be required for SGA endorsement of banking and exchange programs in which water is exported from the SGA area.

Examples of how a few agencies could operate under this Framework are provided as Exhibit 3.

V. Model Groundwater Banking Program Elements

The purpose of this MGBP is to recognize and create incentives for agencies developing or expanding conjunctive use practices beyond basin sustainability goals. Conjunctive use will be critical to the region's future water supply and to the sustainability of the underlying groundwater basin. The MGBP will establish a consistent set of policies to ensure the sustainability of the groundwater basin, while creating opportunities to recover investments for agencies that can demonstrate they have banked water in the basin in excess of basin sustainability goals.

The MGBP elements listed below include all of the elements arising over an entire banking and exchange cycle. The timing as to when information would be required by SGA would depend on the timing of the operations. For example, a banking and exchange agreement might involve the banking of excess surface water on behalf of an agency from outside the SGA area in a wet year, with the recovery of that water occurring in a future dry year. In

such a case, the exchange agreement and environmental documentation may be required at the time water is banked. Since the recovery of banked water could occur several years into the future, it may be more appropriate to secure permits and develop the plans listed below at that time.

- A. Exchange agreement - an exchange agreement is the agreement between the seller and buyer. While there is no single model for this agreement, SGA staff can provide examples of existing exchange agreements in other parts of the state.
- B. Environmental documents – depending on the program, preparation of environmental documentation may be necessary. In other cases, banking and exchange programs may rely on existing environmental documentation. For example, the 2009 Drought Water Bank used existing CEQA coverage under the Environmental Water Account (EWA). Therefore, potential participants in the program would not require CEQA. Potential exchanges not falling under an existing state Department of Water Resources program (e.g., EWA) may require NEPA compliance, if the exchange involves the use of federal facilities.
- C. County permit – Sacramento County has an ordinance that pertains to the export of groundwater and surface water outside the county. Sacramento County Water Agency Code Title 3 Chapter 3 under Section 3.40.090 is as follows:

Groundwater and Surface Water Export

Groundwater or surface water shall not be transported in any manner from Sacramento County to any point outside the County, except pursuant to a permit issued by the Engineer for each and every source and/or location of water export in accordance with the following:

- 1) Application. To obtain a permit the owner or authorized agent shall first file an application in writing stating the following:
 - a) Name of applicant, owner of source, owner of place of use, consulting engineer who will plan and design the work;*
 - b) Description of proposed action, location of source(s) and point(s) of use;*
 - c) Justification for proposed action;*
 - d) Any other information requested by Engineer.**
- 2) Engineer shall within thirty days of receipt of the application, or within thirty days of receipt of additional information, make such investigations as necessary to determine if the proposal is in conformance with County water planning policies adopted and revised from time to time by the County and the Sacramento County Water Agency, and if the proposal will impose liability on*

the County or the Water Agency, or cause adverse impacts on the source, the area of use, or the environment.

3) After investigation Engineer shall approve, approve conditionally, or disapprove the application for permit. Engineer shall not grant a permit if the permit will authorize work or activity which is inconsistent with the general plan of the County of Sacramento, the water plan of the Sacramento County Water Agency, or a specific plan of the County or Water Agency which may be affected by the work or activity.

Nothing in this section contained shall apply to those public water purveyors providing water service in two or more counties within a legally defined service area.

- D. Exchange Recovery Plan – prior to the extraction of groundwater for the purposes of exchanging surface water or groundwater from the SGA area, the project proponent⁷ shall submit an Exchange Recovery Plan (ERP) to SGA and any appropriate state and federal agencies. The ERP should be submitted at least two months in advance of expected operations to allow staff time to review the ERP and report to the SGA Board. Consistent with criteria developed for state and federal groundwater substitution transfers, the ERP shall include the five elements discussed below. Note that the state and federal programs also have a minimum two month review time, so these documents should be submitted concurrently to the appropriate agency.
- i. General proposal information – the project proponent should provide a brief summary of the proposed project including, but not limited to, the participants, the contracted volumes available for exchange, and the term of the agreement.
 - ii. Exchange project map – the project proponent shall prepare a project map showing the locations of all production wells and clearly identifying the wells to be used in the recovery operations. The map should also include major roads, hydrology, district boundaries, and wells of adjacent water purveyors to the purveyor subject to the exchange operations. Additionally, the map should show the locations of any small water systems licensed through the County or State within one mile of the proposed operations. SGA can provide information on production wells of member agencies as well as the locations of small water systems.

⁷ The project proponent is the SGA member agency proposing to enter into an exchange agreement.

- iii. Well information table – the project proponent shall prepare a table of information for all wells expected to participate in the operation. The following information shall be included in the table, with each data item listed in columnar format:
1. Well owner name
 2. Well identification number (per owner’s naming)
 3. State Well Number (if assigned)
 4. Latitude of well
 5. Longitude of well
 6. Township/range/section descriptor of well
 7. Land surface elevation at well location
 8. Total depth of well
 9. Depth of annular seal
 10. Well construction method
 11. Diameter of well casing
 12. Screen interval (include top and bottom of interval referenced in feet below land surface. For wells with multiple screens, each interval should be indicated in distinct rows on the spreadsheet)
 13. Gravel pack interval (include top and bottom for each gravel pack interval corresponding to screen interval from item above)
 14. Estimated well capacity (gallons per minute)
 15. Pump power source (electric, diesel, etc.)
- iv. Geologic logs – for each well, provide available geologic/lithologic information (e.g., Driller’s log, electric log). SGA maintains much of this information in its data management system. SGA staff may be able to assist in compiling this information.
- v. Water quality data – baseline water quality data should include the information listed below. SGA maintains much of this information in its data management system. SGA staff may be able to assist in compiling this information.
1. For each well in the program, include the most recent measurement of total dissolved solids (TDS) or electrical conductivity (EC) and the date of the measurement.
 2. For each well in the program, disclose any past primary or secondary maximum contaminant level (MCL) exceedances and the current status of the well with respect to the MCL.
 3. Disclose any known areas of groundwater contamination within one mile of the service area (or the proposed wells in the program) of the project proponent.

- vi. Baseline extraction – for each well in the program, the project proponent should provide a baseline extraction by month in acre-feet to serve as a baseline from which additional extraction will serve to document “performance” of the exchange. The 2009 Drought Water Bank used 2008 as the baseline unless the project proponent was able to demonstrate that a different method for determining a baseline was more appropriate. Additionally, monthly data is important because of potential restrictions as to when the water can be physically transported. For example, the 2009 Drought Water Bank could only use additional extractions from July 1 through September 30 because of through-Delta pumping restrictions. SGA staff coordinated with DWR on the 2009 Drought Water Bank and can assist in determining an appropriate basis for establishing a baseline.
 - vii. Extraction schedule – for each well in the program, the project proponent should provide an estimated pumping schedule for each month that exchange operations are expected to occur. This information should be combined with the table of baseline extraction above and include the estimated net delivery of each well resulting from extractions above the baseline.
- E. Monitoring plan – prior to the extraction of groundwater for the purposes of exchanging water from the SGA area, the project proponent shall submit a Monitoring Plan to SGA and any applicable state or federal agencies. To allow time for review and discussion, the Monitoring Plan should be submitted two months prior to expected exchange operations. Consistent with guidelines developed with state and federal groundwater substitution transfers, the plan should include the following elements:
- i. Monitoring – the project proponent should design a monitoring program that is intended to characterize the expected impacts of the pumping during and following the exchange recovery operations. The project proponent should demonstrate that it has coordinated with adjacent purveyors and is monitoring to minimize impacts to its neighbors. Additionally, there are more than 20 small water systems⁸ that are reliant on groundwater as their primary supply within the SGA area. The monitoring plan should identify any systems within one mile of the

⁸ A small water system is defined by the California Department of Public Health as water for human consumption that has 15 or more service connections or regularly served at least 25 individuals at least 60 days out of the year, but has fewer than 200 service connections. This includes any collection, treatment, storage, and distribution facilities.

boundary of the proposed operations and address the monitoring in place to observe potential impacts to these small systems.

When possible dedicated monitoring wells (i.e., non-producing wells) should be incorporated into the monitoring well network. SGA maintains a series of dedicated wells in the basin, so the project proponent should also coordinate with SGA to ensure that these wells are monitored where applicable. Required monitoring includes:

1. Pre-exchange water elevations – in order to determine the potential impacts to groundwater elevations following the exchange operations, the project proponent shall measure groundwater elevations in the selected water elevation monitoring network by April 15 prior to commencing exchange operations (levels should be collected earlier if the performance period starts prior to the April 15 target date).
 2. During exchange water elevations – during the performance period, water elevations will be collected at the beginning of each month from the approved monitoring well network. Elevations should be as static as possible by cycling the well out of production for as long as practicable prior to collecting the data. Typically, a minimum of several hours should be sufficient.
 3. During exchange water quality – water quality shall be measured at a subset of 10% of wells participating in the program. The project proponent should attempt to achieve the highest practicable level of geographic distribution and the deepest wells in its system. During the performance period, water quality shall be monitored at the wellsite by collecting a grab sample of water from the production well and measuring either TDS or EC.
 4. During exchange groundwater extractions – for each well in the program, the project proponent should provide meter readings of extracted data for each calendar month of performance compared to the baseline for that well. The net groundwater exchanged will be the result of subtracting the baseline from the actual water produced.
 5. Post-exchange water level monitoring – typically, monthly water level monitoring continues until water levels have recovered to elevations prior to operations or until April of the year following the exchange, whichever comes first. Requests to consider discontinuing water level monitoring prior to these times should be submitted to SGA.
- ii. Reporting – monitoring and extraction data should be submitted on a monthly basis by the 15th day of the month for the previous calendar

month for the duration of the performance period. A final report will be submitted by May of the year following the exchange operation that shows a comparison of spring groundwater elevations (assume measurement of April 15) from prior to the exchange to those after the exchange.

- F. Mitigation plan – the mitigation plan is intended to minimize impacts to adjacent water purveyors or other third parties. Prior to the extraction of groundwater for the purposes of exchanging water from the SGA area, the project proponent shall submit a Mitigation Plan to SGA and any applicable state or federal agencies. To allow time for review and discussion, the Mitigation Plan should be submitted two months prior to expected exchange operations. Consistent with guidelines developed with state and federal groundwater substitution transfers, the plan should include the following elements:
- i. A designated point of contact for the project proponent where all concerns related to operation of the exchange program can be directed.
 - ii. A timeline/schedule for responding to any concerns.
 - iii. A procedure for verifying whether a problem exists related to the exchange operations.
 - iv. A procedure for notifying SGA and other potentially impacted parties.
 - v. A discussion of the range of possible actions to respond to verified problems resulting from the exchange operations.

VI. Roles under Phase III of the Framework

Role of SGA Staff:

- Develop sustainability goals for the basin in consultation with water agencies and the SGA Board.
- Review water agency plans for meeting sustainability goals and report to the SGA Board.
- Preliminarily determine net banked water and track changes to banked water amounts for each agency.
- Review and report on whether the sustainability goals appear to be appropriate for basin sustainability in the Biennial Basin Management Report beginning in 2012.

Role of the SGA Board:

- Adopt the Water Accounting Framework Policy.
- Adopt the initial voluntary basin sustainability plans for agencies in the Central Unit.
- Approve initial net banked water and annual transactions.
- Make determinations if basin sustainability plans are consistent with Framework intent.

- The Board will not have any enforcement power to prevent an agency from implementing alternatives to achieve basin sustainability goals.
- The Board will not have authority to enforce basin sustainability goals, or otherwise limit groundwater extractions.

Role of the overlying agencies:

- Implement programs to achieve the agency's basin sustainability goal on a voluntary basis.
- If desired, develop a basin sustainability plan that allows increases in groundwater pumped in dry years (beyond the basin sustainability goals) while not changing their long-term groundwater extraction rate.
- If desired, enter into agreements that allow water to be banked in the basin and exchanged outside the basin.
- If desired, enter into agreements with other water agencies inside the basin to improve water supply reliability by transferring groundwater or surface water.
- Submit alternative basin sustainability plans to the SGA.

Exhibit 1
SGA Basin Figure Showing SGA Units

Long-Term Representative Hydrographs in the SGA Area

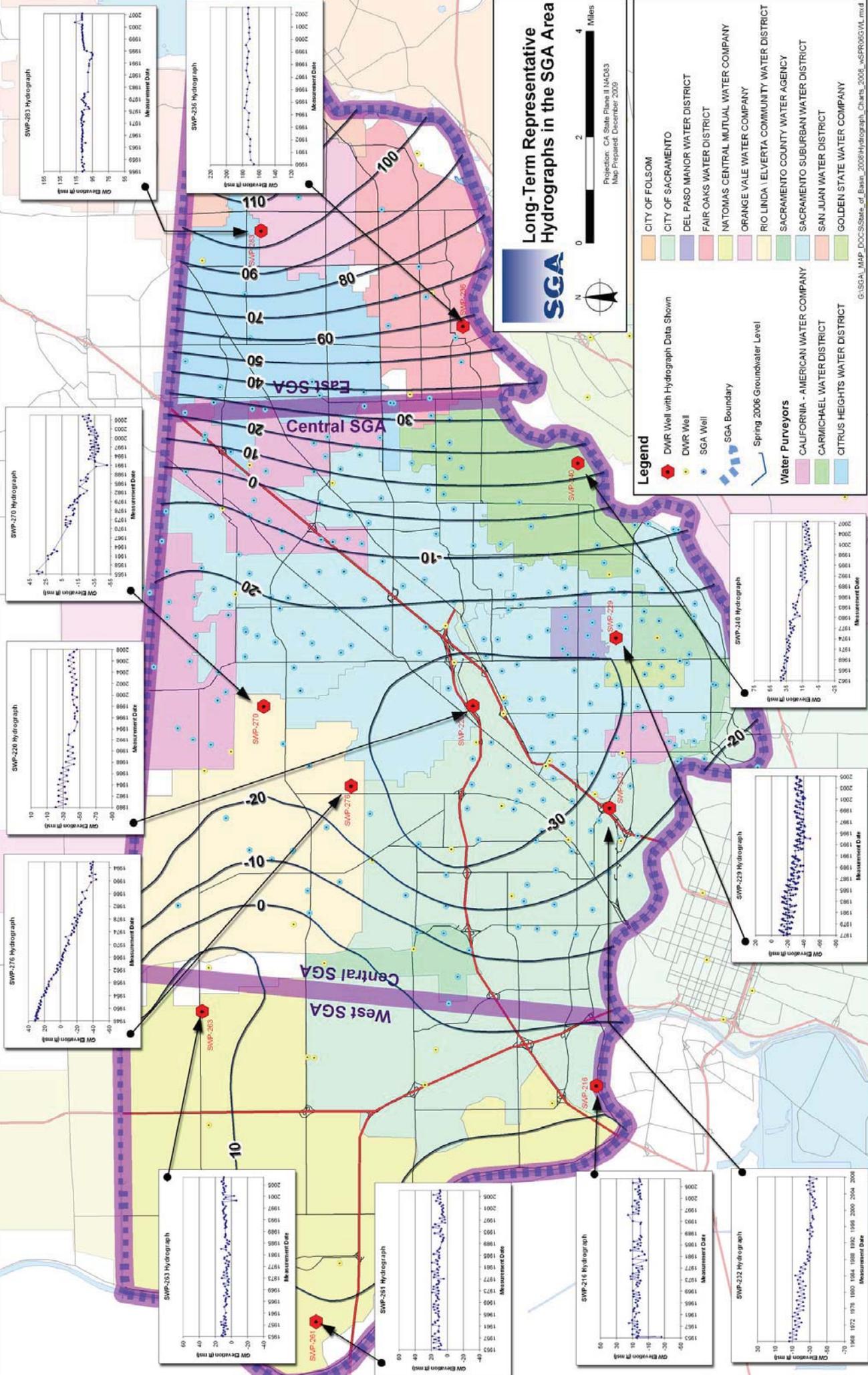


Projection: CA State Plane (14483)
Map Prepared: December, 2009



Legend

- DWR Well with Hydrograph Data Shown**
 - DWR Well (Red dot)
 - SGA Well (Blue dot)
- SGA Boundary** (Blue dashed line)
- Spring 2006 Groundwater Level** (Blue line)
- Water Purveyors**
 - CITY OF FOLSOM
 - CITY OF SACRAMENTO
 - DEL PASO MANOR WATER DISTRICT
 - FAIR OAKS WATER DISTRICT
 - NATOMAS CENTRAL MUTUAL WATER COMPANY
 - ORANGE VALE WATER COMPANY
 - RIO LINDA | ELVERTA COMMUNITY WATER DISTRICT
 - SACRAMENTO COUNTY WATER AGENCY
 - SACRAMENTO SUBURBAN WATER DISTRICT
 - SAN JUAN WATER DISTRICT
 - GOLDEN STATE WATER COMPANY
 - CALIFORNIA - AMERICAN WATER COMPANY
 - CARMICHAEL WATER DISTRICT
 - CITRUS HEIGHTS WATER DISTRICT



G:\SGA_Map_Docs\State_of_Basin_2008Hydrograph_Charts_2008_wsFR0614.mxd

Exhibit 2
Central Unit Basin Sustainability Goals

Table 1. Central Unit Basin Sustainability Goals

Agency	Groundwater Pumping prior to SGA Formation (ac-ft) (1)	% Total Groundwater Pumping prior to SGA Formation	Sustainable Pumping Estimate (ac-ft) (2)	Average Annual Basin Sustainability Goal (ac-ft)
Carmichael Water District	7,516	7.4	6,646	870
City of Sac	23,287	22.9	20,591	2,696
California American Water	20,351	20.0	17,995	2,356
Del Paso Manor Water District	1,657	1.6	1,465	192
Golden State Water Company	1,242	1.2	1,098	144
Rio Linda/Elverta Community Water District	3,259	3.2	2,882	377
Sacramento, County of	4,850	4.8	4,288	562
Sacramento Suburban Water District	39,622	38.9	35,035	4,587
Total	101,784	100	90,000	11,784

1) Data based on average pumping 1993 through 1997.

2) The sustainable pumping estimate reflects observations of extractions and drawdowns based on facilities in the basin as of 2004. This should not be construed as a fixed volume of water that can be extracted from the basin under future facilities and operations.

Exhibit 3
Water Accounting Framework Examples

Exhibit 3
WATER ACCOUNTING FRAMEWORK EXAMPLES

Principles

These principles apply to the tracking of the Water Accounting Framework for those agencies within the Central Unit of the SGA area.

- All agencies start with a zero balance for basin sustainability beginning on January 1, 2012.
- Agencies that can demonstrate surface water deliveries in excess of baseline levels (1993-1997) during the period August 1, 1998 through December 31, 2011 will be credited with exchangeable water.
- Beginning on January 1, 2012, the volume of surface water imported, beyond that necessary to meet the pumping target, is the annual net banked water, credited to the exchangeable water balance.
- Credits may be transferred from an agency's exchangeable water balance to its basin sustainability balance.
- Credits may be transferred from an agency's exchangeable water balance to the exchangeable water balance *or* the basin sustainability balance of another agency.
- A basin sustainability balance is neither transferable to another agency nor to the exchangeable water within an agency's accounting.
- An agency must have a positive or neutral sustainability balance to participate in a transfer of surface water or groundwater outside the basin.
- The 5% basin mitigation factor assessed on banked water applies only to direct pumping of groundwater for transfer outside the basin or to future banking for parties outside the basin.

Examples for three agencies operating under the Framework are provided below along with the accompanying table.

Agency A – Agency A is actively practicing conjunctive use. Agency A built a large balance of exchangeable water (100,000 af) through actions prior to adoption of the Framework. Agency A will take advantage of opportunities to transfer surface water to which it has access, and may develop the capacity to transfer groundwater directly.

2012 – Agency A pumped 16,000 acre-feet (af), which is less than its target of 20,000 af. The basin sustainability balance increases by 4,000 af. Agency A took delivery of 10,000 af of surface

Water Accounting Framework, Phase III

water. Of this amount, 6000 af went to offset pumping to meet the target (total demand was 26,000 af); 4000 af is credited toward the exchangeable water balance.

2013 – Agency A pumped less than the target. Basin sustainability balance increases by 1,000 af. No surface water delivered, so banked water balance does not increase.

2014 – Agency A pumping exceeded target. Basin sustainability balance reduced. Agency A took delivery of 3,000 af surface water. No credit to exchangeable water balance since, even with surface water, pumping target still exceeded. No debit to exchangeable water.

2015 – Agency A pumping exceeds target. Basin sustainability balance decreased. No surface water transactions, exchangeable water balance does not change.

2016 – Agency A pumping exceeds target. Basin sustainability balance decreased to negative. No surface water transactions, exchangeable water balance does not change. Agency A may carry negative balance if no transfer proposed.

2017 – Agency A pumping meets target. Agency A transfers 5,000 af of available surface water. Debit 1,000 af from exchangeable water to achieve zero basin sustainability balance, because no transfers of available surface water if basin sustainability balance is negative.

2018 – Agency A pumping less than target. Basin sustainability balance increased. Agency A uses 8,000 af surface water; 7,000 af toward meeting pumping target, 1,000 af added to exchangeable water. 3,000 af surface water transfer not debited since pumping target was met.

2019 – Agency A pumps 35,000 af; of which 14,000 af is transferred through direct pumpback. 14,000 af debited from exchangeable water to achieve zero sustainability balance. 700 af (5% basin mitigation factor) debited for direct groundwater export.

Agency B – Agency B is not engaged in active conjunctive use, but intends to achieve its target pumping through water efficiency and/or purchase of credits from others.

Agency B exceeds pumping target in early years (2012-2014), resulting in negative basin sustainability balance. Beginning in 2015, conservation reduces pumping and basin sustainability balance recovers. In 2019, Agency B purchases 2,000 af of exchangeable water credits from Agency C to zero out basin sustainability balance.

Agency C – Agency C practices limited conjunctive use, taking relatively small volumes of surface water when it is available. Having done this for several years, Agency C begins with a positive exchangeable water balance of 3,000 af.

2012 – Agency C exceeds pumping target, basin sustainability balance goes negative.

Water Accounting Framework, Phase III

2013 – Agency C takes delivery of surface water, but entire amount goes toward offsetting pumping to meet target. No increase to exchangeable water balance.

2015-16 – Surface water deliveries exceed that necessary to offset pumping. Exchangeable water balance increases.

2019 – Agency C sells 2,000 af exchangeable water credits to Agency B. No basin mitigation factor applied since transfer was in-basin.

Basin Sustainability Goal

Exchangeable Water

Agency A	Target Pumping	Actual GW pumped	Total Demand	Transfer of Credits	Basin Sustainability Balance	Surface Water for Conjunctive Use	Water Transfer (out of basin)	Credits transferred	Net Banked Water	Exchangeable Water Balance
	20,000									100,000
2012		16,000	26,000		4,000	10,000	0	0	4,000	104,000
2013		19,000	19,000		5,000	0	0	0	0	104,000
2014		21,000	24,000		4,000	3,000	0	0	0	104,000
2015		22,000	22,000		2,000	0	0	0	0	104,000
2016		23,000	23,000		-1,000	0	0	0	0	104,000
2017		20,000	20,000	1,000	0	0	5,000	-1,000	0	103,000
2018		19,000	27,000		1,000	8,000	3,000	0	1,000	104,000
2019		35,000	35,000	14,000	0	0	14,000	-14,000	-700	89,300

Basin Sustainability Goal

Exchangeable Water

Agency B	Target Pumping	Actual GW pumped	Total Demand	Transfer of Credits	Basin Sustainability Balance	Surface Water for Conjunctive Use	Water Transfer (out of basin)	Credits transferred	Net Banked Water	Exchangeable Water Balance
	10000									0
2012		12000	12000		-2,000	0	0	0	0	0
2013		12000	12000		-4,000	0	0	0	0	0
2014		11500	11500		-5,500	0	0	0	0	0
2015		10000	10000		-5,500	0	0	0	0	0
2016		9500	9500		-5,000	0	0	0	0	0
2017		9000	9000		-4,000	0	0	0	0	0
2018		9000	9000		-3,000	0	0	0	0	0
2019		9000	9000	2000	0	0	0	0	0	0

Basin Sustainability Goal

Exchangeable Water

Agency C	Target Pumping	Actual GW pumped	Total Demand	Transfer of Credits	Basin Sustainability Balance	Surface Water for Conjunctive Use	Water Transfer (out of basin)	Credits transferred	Net Banked Water	Exchangeable Water Balance
	8000									3,000
2012		9,000	9,000		-1,000	0	0	0	0	3,000
2013		8,000	9,000		-1,000	1,000	0	0	0	3,000
2014		8,000	8,000		-1,000	0	0	0	0	3,000
2015		7,000	9,000		0	2,000	0	0	1,000	4,000
2016		7,000	8,500		1,000	1,500	0	0	500	4,500
2017		7,500	7,500		1,500	0	0	0	0	4,500
2018		8,500	8,500		1,000	0	0	0	0	4,500
2019		8,000	8,500	1,000	1,000	500	0	-2,000	0	2,500

APPENDIX M. PUBLIC HEARING NOTICE

The Sacramento Bee

P.O. Box 15779 • 2100 Q Street • Sacramento, CA 95852

**BNA COMMUNICATIONS
PO BOX 632940
SAN DIEGO, CA 92163**

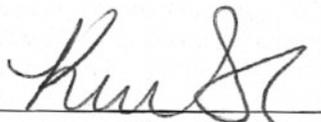
**DECLARATION OF PUBLICATION
(C.C.P. 2015.5)**

**COUNTY OF SACRAMENTO
STATE OF CALIFORNIA**

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interest ed in the above entitled matter. I am the printer and principal clerk of the publisher of The Sacramento Bee, printed and published in the City of Sacramento, County of Sacramento, State of California, daily, for which said newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sacramento, State of California, under the date of September 26, 1994, Action No. 379071; that the notice of which the annexed is a printed copy, has been published in each issue thereof and not in any supplement thereof on the following dates, to wit:

July 13, 19, 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Sacramento, California, on **July 13, 2011.**



(Signature)

NO 419 PUBLIC NOTICE
NOTICE OF PUBLIC HEARING
On California American Water's Urban Water Management Plan

California American Water will hold a public hearing on Wednesday, July 27, 2011 for the final draft of the Northern Division- Sacramento District 2010 Urban Water Management Plan. The Sacramento District's service areas overly and provide water to cities including Isleton, portions of Citrus Heights, and portions of Rancho Cordova, as well as unincorporated portions of Sacramento and Placer Counties. Copies of the plan will be available for public review at 4701 Beloit Drive, Sacramento, CA 95838 and in the "news" section at www.californiaamwater.com prior to the hearing. Public comment on the document will be accepted at the hearing. The hearing will be held at 5 p.m. at the California American Water office located at 4701 Beloit Drive, Sacramento, CA 95838.

APPENDIX N. CUWCC BEST MANAGEMENT PRACTICE REPORT



CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: **CALIFORNIA AMERICAN WATER** District Name: **SACRAMENTO** CUWCC Unit #: **5023**
Retail

Primary Contact: **REBECCA CASSIDY** Telephone: **619-435-7459** Email: **rebecca.cassidy@amwater.com**

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

GPCD in 2010	177
GPCD Target for 2018	171

Year	Report Target	Highest Acceptable Bound	
	% Base	GPCD	GPCD
2010	96.4%	201	209
2012	92.8%	194	201
2014	89.2%	186	194
2016	85.6%	179	186
2018	82.0%	171	171

Not on Track if 2010 GPCD is \geq than target

GPCD in 2010: **177**
 Highest Acceptable GPCD for 2010: **209**
On Track



CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Foundational BMPs
BMP 1.1 Operational Practices

1. Conservation Coordinator provided with necessary resources to implement BMPs?

	2009	2010
Name	PATRICK PILZ	PATRICK PILZ
Title	MANAGER, CONSERVATION & EFFICIENT MANAGER, WATER CONSERVATION & EFFICIENCIES	
Email	patrick.pilz@amwater.com	patrick.pilz@amw

Agency: **CALIFORNIA AMERICAN WATER**

District Name: **SACRAMENTO**

CUWCC Unit #: **5023**

Retail

Number of Cll accounts with Mixed Use meters

3,063
No
No
Yes

3,195
No
No
Yes

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
Yes

No
No
Yes

Info only due 2011

Feasibility Study provided to CUWCC?

No
Yes

No
Yes

Info only due 2011

Completed a written plan, policy or program to test, repair and replace meters

On Track

On Track

On Track if Yes, Not on Track if No



CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: **CALIFORNIA AMERICAN WATER** District Name: **SACRAMENTO** CUWCC Unit #: **5023**
 Retail Coverage Report Date: **June 23, 2011**
 Primary Contact: **REBECCA CASSIDY** Email: **rebecca.cassidy@amwater.com**

1.4 Retail Conservation Pricing Metered Water Rate Structure

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Uniform	Yes	Single-Family	Uniform	Yes
Single-Family	Non-Volumetric Flat R	No	Single-Family	Non-Volumetric Flat Rate	No
Commercial	Uniform	Yes	Commercial	Uniform	Yes
Commercial	Non-Volumetric Flat R	No	Commercial	Non-Volumetric Flat Rate	No
Other	Uniform	Yes	Other	Uniform	Yes

On Track

Date 2009 data received June 1, 2011
 Date 2010 data received June 1, 2011
 On Track if: Increasing Block, Uniform, Allocation, Standby Service; Not on Track if otherwise

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 1 July 2010. If signed MOU after 31 Dec. 1997, implementation starts no later than 1 July 2013, or within seven years of signing the MOU.



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	Uniform	6,414	Single-Family	10,711
Single-Family	Non-Volumetric Flat R	-	Single-Family	-
Commercial	Uniform	5,620	Commercial	7,017
Commercial	Non-Volumetric Flat R	-	Commercial	-
Other	Uniform	1,343	Other	1,827
Total Revenue Commodity Charges (V):		\$ 13,377		\$ 19,556
Total Revenue Fixed Charges (M):		\$ 4,952		\$ 2,485
Calculate: V / (V + M):		73%		89%

On Track

Agency Choices for rates:
 A) Agencies signing MOU prior to 13 June 2007, implementation starts 1 July 2007: On Track if $(V / (V + M)) \geq 70\% \times .8 = 56\%$ for 2009 and $70\% \times 0.90 = 63\%$ for 2010. Not on track if $(V / (V + M)) < 70\%$;
 B) Use Canadian model. Agencies signing MOU after 13 June 2007, implementation starts July 1 of year following signing.

Canadian Water & Wastewater Rate Design Model Used and Provided to CUWCC
 If Canadian Model is used, was 1 year or 3 year period applied?

No

Wastewater Rates

Does Agency Provide Sewer Service?

2009 If 'No', then wastewater rate info not required. **No**

2010 **No**

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Uniform	Yes	Single-Family	Uniform	Yes
Single-Family	Non-Volumetric Flat R	Yes	Single-Family	Non-Volumetric Flat Rate	Yes
Commercial	Uniform	Yes	Commercial	Uniform	Yes
Commercial	Non-Volumetric Flat R	Yes	Commercial	Non-Volumetric Flat Rate	Yes
Other	Uniform	Yes	Other	Uniform	Yes

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

Does a wholesale agency implement Public Outreach Programs for this utility's benefit?
 Names of Wholesale Agencies

- 1) Contacts with the public (minimum = 4 times per year)
- 2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly).
- 3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly).
- 4) Description of materials used to meet minimum requirement.

	2009 Yes	2010 Yes	Yes/No
Regional Water Authority-Regional Water			
	15	19	
	31	41	
	Yes	Yes	
General water conservation information Website			All 6 action types implemented and reported to CUWCC to be 'On Track')
Newsletters articles on conservation			
General water conservation information Articles or stories resulting from outreach			
Newspaper contacts			
News releases			
Written editorials			
\$	98,189	\$ 141,314	
Description is too large for text area. Data will be stored in the BMP Reporting database when online.			
	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

Does a wholesale agency implement School Education Programs for this unit's benefit?
Name of Wholesale Supplier?

1) Curriculum materials developed and/or provided by agency

2) Materials meet state education framework requirements and are grade-level appropriate?

3) Materials Distributed to K-6?

Describe K-6 Materials

Materials distributed to 7-12 students?
4) Annual budget for school education program.

5) Description of all other water supplier education programs

	2009	2010
	Yes	Yes
	Regional Water Authority's Regional Water Efficiency Program.	Regional Water Authority
	<ul style="list-style-type: none"> 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 Workbook Parent Introduction Letter* Home Survey Form 	<ul style="list-style-type: none"> 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	Yes
	Yes	Yes
	MIE Program- Student supplements, written by an award-winning environmental educator and edited by water agency personnel.	Student supplements, written by an award-winning environmental educator and edited by water agency personnel.
	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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
	No	No
	\$ 71,500	\$ 109,565
	Be Water Smart, presented by the Regional Water Authority and The Sacramento Bee's Newspapers in Education (NIE) program, teaches kids to practice water efficiency in every-day activities. Students learn where water comes from and ecology through math, science and the arts, fun puzzles, investigative work and activities.	Description is too large for text area. Data will be stored in the BMP Reporting database when online.
	See Wholesale Report 0	See Wholesale Report 0
	Materials distributed to 7-12 students?	Info Only
	4) Annual budget for school education program.	
	5) Description of all other water supplier education programs	Describe materials to meet minimum requirements
		All 5 actions types implemented and reported to CUWCC to be



APPENDIX O. 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 location
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)		Table 3; Sections 1.1, and 1.2;
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)		Section 1.3 and Appendix T
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)		Section 1.3 and Appendix S
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)		Section 1.3
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		Table 3; Sections 1.1, 1.2, and 1.3; Appendix M and Appendix T

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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		Section 1.3; Appendix M
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Section 1.3; Appendix S
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 1.3.1
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)		Section 1.3
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		Section 1.3
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Sections 2.1.1, 2.2.1
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.	Section 2.2; Table 6
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.	Section 2.2; Table 6

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.1
SYSTEM DEMANDS				
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)		Section 3.1; Appendix J
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> 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	Section 1.3; Appendix M
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		No standardized form available in section 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.	Section 0
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.	Section 3.3. and Appendix T
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)		Section 3.2.1
SYSTEM SUPPLIES				

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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.	Section 4.1
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.	Section 4.2
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)		Section 4.2.1; Appendix P; Appendix Q
16	Describe the groundwater basin.	10631(b)(2)		Section 4.2
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Section 4.2.6
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)		Section 4.2.6
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)		Section 4.2
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.	Section 4.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.4
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)		Section 4.7
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.5
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		Section 4.6
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)		Section 4.6
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)		Section 4.6
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)		Section 4.6
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)		Section 4.6
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)		Section 4.6

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Section 4.6
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)		Section 4.6
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)		Section 5.1.2
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)		Section 5.1
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)		Section 5.1
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)		Section 5.2
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)		Section 5.2.3
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)		Section 5.2.4
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)		Section 5.2.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Section 5.2.2
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.2.2
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)		Section 5.2.5
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Section 5.2.8
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.2.6
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	Section 5.3
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)		Section 5.2.7
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measure 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.	Section 6.2; Appendix N

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
27	Describe the methods the supplier uses to evaluate the effectiveness of DIMMs implemented or described in the UWMP.	10631(f)(3)		Section 6.1; Appendix N
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)		Section 6; Appendix N
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.	Section 6.3; Appendix N
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.	Appendix N

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 P. SGAGMP

Appendices P and Q are on a CD attached to the back cover of this UWMP.

APPENDIX Q. CSCGMP

Appendices P and Q are on a CD attached to the back cover of this UWMP.

APPENDIX R. DEMAND PROJECTION METHODOLOGY

Demand projections were developed by applying the following methodology:

1. **Calculate SB7 Baseline and Targets.** WSC calculated the baseline, compliance, interim target, and target per capita water use for the entire Sacramento District in compliance with SB7 requirements. The Per Capita Water Use Technical Memorandum describes how these per capita numbers were calculated (see Appendix J).
2. **Estimate population growth rates for each service area.** WSC calculated population projections and annual growth rates for each service area based on SACOG projections:
 - a. SACOG provided a database of population projections up to 2035 in Excel format. The population projections years were 2005, 2013, 2018, and 2035. The database assigns population projections to each unique Transportation Analysis Zone (TAZ). There are approximately 1,500 TAZs in the database. California American Water's service areas overlie approximately 191 TAZs. The TAZs were intersected with California American Water's service area boundaries using GIS.
 - b. The next step involved calculating the population per area for each TAZ area and calculating the amount of acres in each TAZ that were overlapped by a California American Water service area boundary. The TAZ population per area factor calculated for each TAZ was applied to the amount of area in each TAZ overlapped by a California American Water service area.
 - c. Then, the projections for each service area were interpolated to provide a population projection for every year between 2005 and 2035.
 - d. Lastly, an annual growth rate was calculated for each year for each service area.
3. **Estimate 2010 population.** WSC utilized population data from the 2010 census, to the block level, and intersected these data with California American Water service area boundaries to calculate population in each service area.
4. **Develop population projections through 2030.** WSC applied the growth rates calculated in step 2 to the 2010 population to calculate annual population estimates through 2030 for each service area.
5. **Develop total demand projections.** WSC applied the Interim Target gpcd to the projected population in 2015 in each service area to estimate demand. WSC applied the Target gpcd to the estimated projected population in 2020, 2025 and 2030 to estimate demand. The expected gpcd for each service area was estimated based on historical gpcd and projected future conservation influences including such factors as metering, distribution of population, and types of use in each service area. Figure 1 shows the historical gpcd for each service area. The interim targets and targets for each service area sum up to a Sacramento District-wide gpcd, which SB 7 compliance is based on. Table 1 shows the current and projected gpcd for each service area and the Sacramento District.

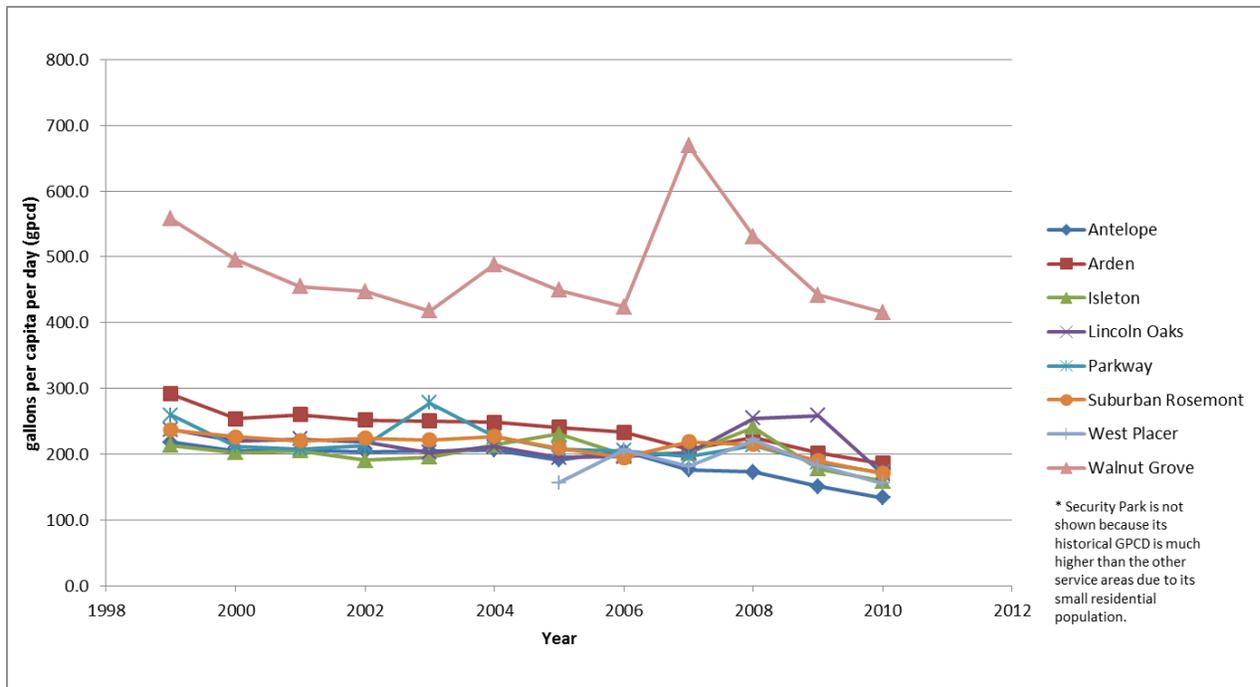


Figure 1. Historical gpcd for All Service Areas

Table 1. Actual and Projected GPCD by Service Areas and District

Service Area	Actual GPCD	Projected GPCD			
	2010	2015	2020	2025	2030
Antelope	133.6	160.0	153.0	150.0	150.0
Arden	186.1	195.0	181.0	179.0	179.0
Isleton	158.9	190.0	180.0	180.0	175.0
Lincoln Oaks	170.2	211.0	180.0	180.0	180.0
Parkway	172.4	195.0	175.0	175.0	175.0
Security Park ¹	5704.4	210.0	185.0	185.0	180.0
Suburban Rosemont	170.6	210.0	175.0	175.0	175.0
Walnut Grove	415.6	404.8	394.0	394.0	394.0
West Placer	155.9	155.0	183.0	183.0	183.0
Check district	133.6	160.0	153.0	150.0	150.0
Targets	186.1	195.0	181.0	179.0	179.0

¹ Security Park’s historical gpcd is much higher than the other service areas due to its small residential population. Residential development is anticipated to occur by 2015, which explains the lower gpcd from 2015 through 2030.

6. **Apportion total demand to DWR customer categories.** WSC established the amount of connections per type of use in 2010 based on California American Water records. The total number of connections for 2015-2030 was estimated by applying annual population growth rates from the Sacramento Area Council of Governments (SACOG). For 2015-2030, all accounts were assumed to be metered. With the exception of Security Park, the number of connections and water use by customer category was estimated based upon the same percentage distribution as in 2010.

Security Park is unique because the number of residential connections is currently very low, but is projected to increase significantly by 2015 based on the City of Rancho Cordova's Rio Del Oro Specific Plan (26). The California American Water Security Park System Comprehensive Planning Study (CPS) prepared in 2008 (55) provides low, medium, and high growth scenarios for the Security Park Service area. The projected residential and commercial customers identified in the medium growth scenario were added to the projected connections for 2015-2030 considering the phasing identified by the CPS medium growth scenario would be delayed by two years. Therefore, the new development was assumed to start in 2015. The water use by customer category was based upon the percentage distribution of connections for 2015-2030.

APPENDIX S. ADOPTION RESOLUTION



October 14, 2011

Attention: Coordinator, Urban Water Management Plans
Department of Water Resources
Statewide Integrated Water Management
Water Use and Efficiency Branch
901 P Street
Sacramento, CA 95814

**Subject: Adoption of California American Water's Northern Division Sacramento District
2010 Urban Water Management Plan**

To Whom It May Concern:

This letter shall confirm that California-American Water Company ("California American Water") has adopted its 2010 Urban Water Management Plan for the Northern Division Sacramento District. The Urban Water Management Planning Act ("Act"), codified in California Water Code Sections 10610 through 10656, requires an urban water supplier, such as California American Water, to prepare and adopt an urban water management plan ("UWMP"). In accordance with the Act, California American Water is proud to submit its 2010 UWMP to the California Department of Water Resources ("DWR") for review.

Sincerely,

A handwritten signature in blue ink, which appears to read "Richard C. Svindland".

Richard C. Svindland
Vice President - Engineering
California American Water

APPENDIX T. 60 DAY NOTIFICATION LETTERS



April 15, 2011

City of Sacramento
Bill Edgar, City Manager
915 I Street, fifth floor
Sacramento, CA 95814

Subject: California American Water 2010 Urban Water Management Plan

Dear Bill Edgar:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



April 15, 2011

Sacramento County
Steve Szalay, County Executive Officer
700 H Street, Suite 7650
Sacramento, CA 95814

Subject: California American Water 2010 Urban Water Management Plan

Dear Steve Szalay:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



April 15, 2011

City of Rancho Cordova
Ted Gaebler, City Manager
2734 Prospect Park Drive
Rancho Cordova, CA 95671

Subject: California American Water 2010 Urban Water Management Plan

Dear Ted Gaebler:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



April 15, 2011

City of Citrus Heights
Henry Tingle, City Manager
6242 Fountain Square Drive
Citrus Heights, CA 95626

Subject: California American Water 2010 Urban Water Management Plan

Dear Henry Tingle:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



April 15, 2011

City of Isleton
Bruce Pope, City Manager
PO Box 716
Isleton, CA 95641

Subject: California American Water 2010 Urban Water Management Plan

Dear Bruce Pope:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



April 15, 2011

Placer County
Thomas Miller, County Executive Officer
175 Fulweiler Avenue
Auburn, CA 95603

Subject: California American Water 2010 Urban Water Management Plan

Dear Thomas Miller:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by the Urban Water Management Planning Act (Act). The Act requires California American Water to notify cities and counties within its service areas that it is preparing its 2010 UWMP 60 days prior to holding a public hearing thereby encouraging public involvement and agency coordination. California American Water will notify you of the specific date, time, and location of this public hearing when finalized.

This letter serves as your official notice of preparation and intent to adopt the UWMP. A draft of the UWMP will be available for review in mid-June 2011. Until that time, if you have any questions or comments regarding the Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP at:

Water Systems Consulting, Inc.
Attn. Mr. Spencer Waterman, Staff Planner
3765 South Higuera St. Suite 102
San Luis Obispo, California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andy Soulé
General Manager, Northern Division
California American Water

cc: Monica Na (California American Water)
Spencer Waterman (Water Systems Consulting, Inc.)



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Bill Edgar
City Manager
City of Sacramento
915 I Street, Fifth Floor
Sacramento, CA 95814

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Edgar:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Steve Szalay
County Executive Officer
Sacramento County
700 H Street, Suite 7650
Sacramento, CA 95814

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Szalay:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Ted Gaebler
City Manager
City of Rancho Cordova
2734 Prospect Park Drive
Rancho Cordova, CA 95671

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Gaebler:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Henry Tingle
City Manager
City of Citrus Heights
6242 Fountian Square Drive
Citrus Heights, CA 95626

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Tingle:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Bruce Pope
City Manager
City of Isleton
PO Box 716
Isleton, CA 95641

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Pope:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water – Sacramento
4701 Beloit Drive
Sacramento, CA 95838

P 916-568-4259
F 916-568-4260

July 14, 2011

Thomas Miller
County Executive Officer
Placer County
175 Fulweiler Avenue
Auburn, CA 95603

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan - Public Hearing**

Dear Mr. Miller:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

This letter serves as your official notice of the UWMP public hearing. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water
 4701 Beloit Drive
 Sacramento, CA 95838

P 916.568.4251
 F 916.568.4260

July 15, 2011

David Breninger
 General Manager
 Placer County Water Agency
 144 Ferguson Rd.
 Auburn, CA 95604

**Subject: California American Water Sacramento District
 2010 Urban Water Management Plan – Estimated Demands**

Dear Mr. Breninger:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). California American Water is required by the Act to provide its demand projections to its wholesale suppliers. The table below provides California American Water’s estimated demands from wholesalers for the periods 2010 through 2030.

Estimated Demands in Acre Feet per Year by Individual Water Wholesaler

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.



CALIFORNIA
AMERICAN WATER

This letter serves as your official notice of the UWMP public hearing and estimated demand projections. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html. A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water
4701 Beloit Drive
Sacramento, CA 95838

P 916.568.4251
F 916.568.4260

July 15, 2011

Marty Hanneman
Director of Utilities
Sacramento City Department of Utilities
1395 35th Ave
Sacramento, CA 95822

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan – Estimated Demands**

Dear Mr. Hanneman:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). California American Water is required by the Act to provide its demand projections to its wholesale suppliers. The table below provides California American Water's estimated demands from wholesalers for the periods 2010 through 2030.

Estimated Demands in Acre Feet per Year by Individual Water Wholesaler

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.



This letter serves as your official notice of the UWMP public hearing and estimated demand projections. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html. A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



California American Water
 4701 Beloit Drive
 Sacramento, CA 95838

P 916.568.4251
 F 916.568.4260

July 15, 2011

Herb Niederberger
 Director
 Sacramento County Dept. of Water Resources
 827 7th Street, #301
 Sacramento, CA 95814

**Subject: California American Water Sacramento District
 2010 Urban Water Management Plan – Estimated Demands**

Dear Mr. Niederberger:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). California American Water is required by the Act to provide its demand projections to its wholesale suppliers. The table below provides California American Water’s estimated demands from wholesalers for the periods 2010 through 2030.

Estimated Demands in Acre Feet per Year by Individual Water Wholesaler

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.



CALIFORNIA
AMERICAN WATER

This letter serves as your official notice of the UWMP public hearing and estimated demand projections. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html. A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



**CALIFORNIA
AMERICAN WATER**

California American Water
4701 Beloit Drive
Sacramento, CA 95838

P 916.568.4251
F 916.568.4260

July 15, 2011

Robert Roscoe
General Manager
Sacramento Suburban Water District
3701 Marconi Avenue, Suite 100
Sacramento, CA 95821

**Subject: California American Water Sacramento District
2010 Urban Water Management Plan – Estimated Demands**

Dear Mr. Roscoe:

California American Water is in the process of preparing its Sacramento District 2010 Urban Water Management Plan (UWMP) as required by California Law through the Urban Water Management Planning Act (Act). California American Water is required by the Act to provide its demand projections to its wholesale suppliers. The table below provides California American Water's estimated demands from wholesalers for the periods 2010 through 2030.

Estimated Demands in Acre Feet per Year by Individual Water Wholesaler

Wholesaler	2010	2015	2020	2025	2030
City of Sacramento	1,069	4,831	4,831	4,831	4,831
Placer County Water Agency	858	1,562	2,027	2,740	3,704
Sacramento County Water Agency ¹	0	107	1,039	2,605	3,178
Sacramento Suburban Water District	1,576	2,000	2,000	2,000	2,000
Total	3,503	8,500	9,897	12,176	13,713

¹ Assumes that a contract will be in place by 2015 for Security Park.



CALIFORNIA
AMERICAN WATER

This letter serves as your official notice of the UWMP public hearing and estimated demand projections. A draft of the UWMP is now available for review at our office or online at www.amwater.com/caaw/about-us/news.html. A public hearing on the final draft of the UWMP will be held at 5 pm on Wednesday, July 27, 2011 at our office – 4701 Beloit Drive, Sacramento.

If you have any questions or comments regarding the 2010 Sacramento District UWMP please contact Water Systems Consulting, Inc., the consultant responsible for the preparation of the UWMP.

Spencer Waterman
Staff Planner
Water Systems Consulting, Inc.
3765 South Higuera St. Suite 102
San Luis Obispo California 93401
(805) 457-8833 ext. 102
(408) 705-3213
Swaterman@wsc-inc.com

Sincerely,

Andrew Soulé
General Manager, Northern Division
California American Water



P.O. Box 4255
San Luis Obispo, CA 93403