Appendix G
Sacramento County Water Agency
2005 Zone 41 UWMP

SACRAMENTO COUNTY WATER AGENCY

2005 ZONE 41 URBAN WATER MANAGEMENT PLAN

Sacramento County Water Agency

December 2005

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Abbreviations and Acronyms

AF – Acre Feet

AF/year – Acre Feet per Year

ASWC – American States Water Company

Cal-Am – California-American Water Company

Central Basin – Central Sacramento County Groundwater Basin

CSCGF – Central Sacramento County Groundwater Forum

CSCGMP – Central Sacramento County Groundwater Management Plan

CVP – Central Valley Project

DHS – Department of Health Services

DWR – State Department of Water Resources

EBMUD – East Bay Municipal Utility District

EIR – Environmental Impact Report

ETo – Evapotranspiration

FRWA – Freeport Regional Water Authority

FRWP – Freeport Regional Water Project

GMP – Groundwater Management Plan

GPM – Gallons Per Minute

JPA – Joint Powers Authority

MG – Million Gallons

MGD – Million Gallons per Day

MOA – Memorandum of Agreement

M&I – Municipal and Industrial

Natomas – Natomas Mutual Water Company

NWS – National Weather Service

PG&E – Pacific Gas and Electric

P.L. – Public Law

POU – American River Place of Use

PSA – Purveyor Specific Agreement

RWQCB – Regional Water Quality Control Board

SACOG – Sacramento Area Council of Local Governments

SCWA – Sacramento County Water Agency

SGA – Sacramento Groundwater Authority

SMUD – Sacramento Municipal Utility District

SRCSD – Sacramento Regional County Sanitation District

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

SSWD – Sacramento Suburban Water District

SWRCB – State Water Resources Control Board

TAF – Thousands of Acre-Feet

USBR – United States Bureau of Reclamation

UWMP – Urban Water Management Plan

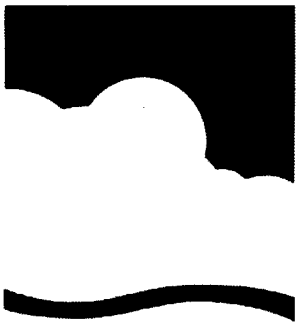
WFA – Water Forum Agreement

WSIP – Water System Infrastructure Plan

WSMP – Zone 40 Water Supply Master Plan

WTP – Water Treatment Plant

WWTP – Wastewater Treatment Plant



SACRAMENTO COUNTY
WATER AGENCY

Water Code section 10620.

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

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

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

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

1. Introduction

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

1.1 Requirement for an UWMP

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

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

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

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

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

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

Water Code section 10621.

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

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

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

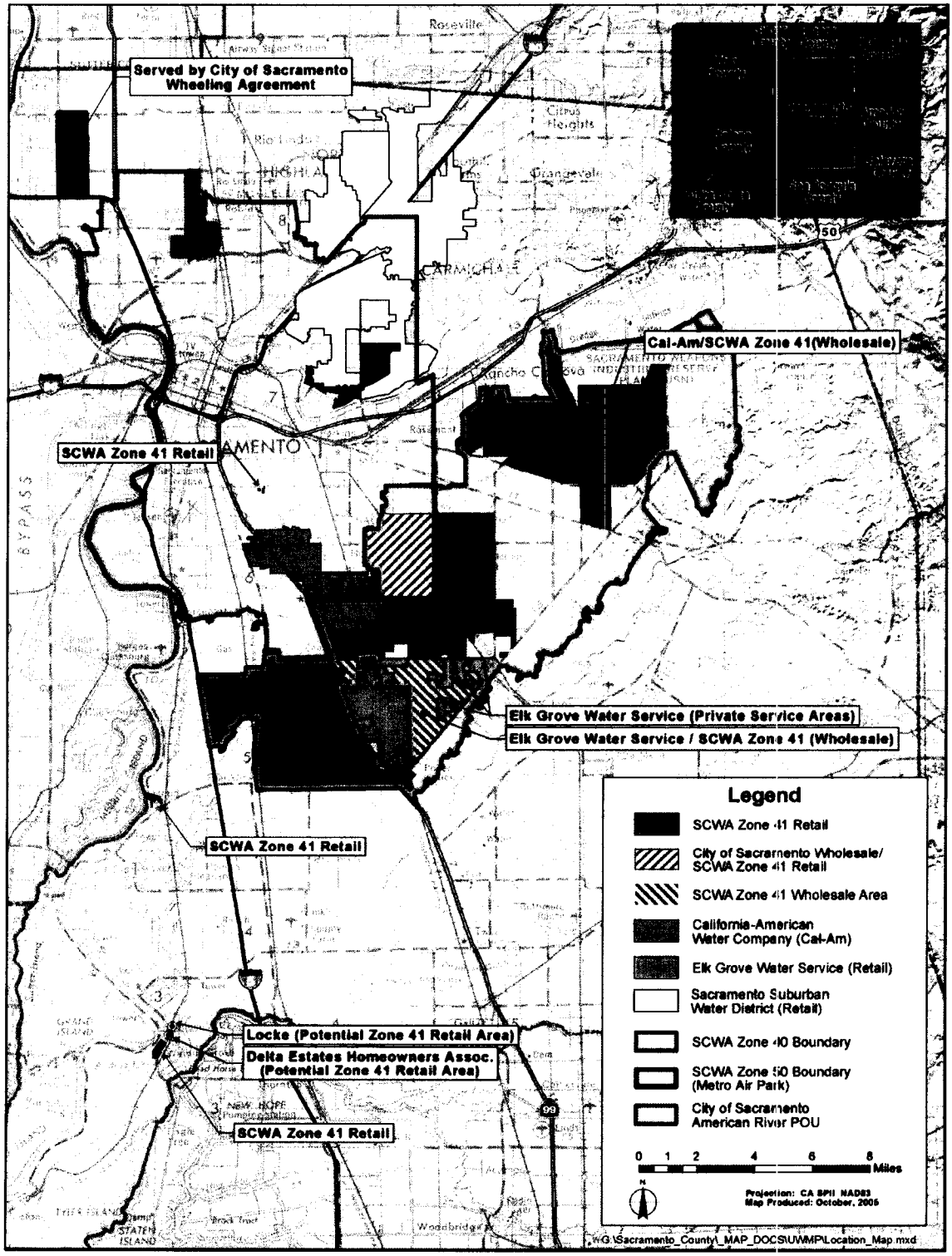
- Central and South Sacramento County Integrated Regional Water Management Plan Functionally Equivalent Document (July 2005)
- Central Sacramento County Groundwater Management Plan (on-going)
- Sacramento County General Plan Update (on-going)

1.2 Purpose of the Zone 41 UWMP

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

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

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



Water Code section 10630.

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

1.3 Preparation and Implementation of the Plan

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

1.3.1 Coordination with Other Agencies

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

1.3.2 Public Participation

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

Table 1-1: Coordination with Other Agencies							
	[illegible]	[illegible]	[illegible] public meetings	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Water Company (Golden State Water Company)			✓			✓	
[illegible]			✓			✓	
[illegible]			✓			✓	
[illegible]			✓			✓	
[illegible]						✓	
[illegible]			✓			✓	
[illegible]			✓			✓	
[illegible]			✓	✓		✓	
[illegible]						✓	
[illegible]						✓	
[illegible]						✓	
[illegible]						✓	
[illegible]				✓	✓	✓	
[illegible]						✓	
[illegible]						✓	
[illegible]			✓		✓	✓	
[illegible]						✓	
[illegible]						✓	

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

1.3.3 Water Forum

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

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

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

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

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

1.3.4 Formation of SCWA

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

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

Producing, storing, transmitting, and distributing groundwater.

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

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

1.3.5 Formation and Purpose of Zone 41

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

1.3.6 Formation and Purpose of Zone 40

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

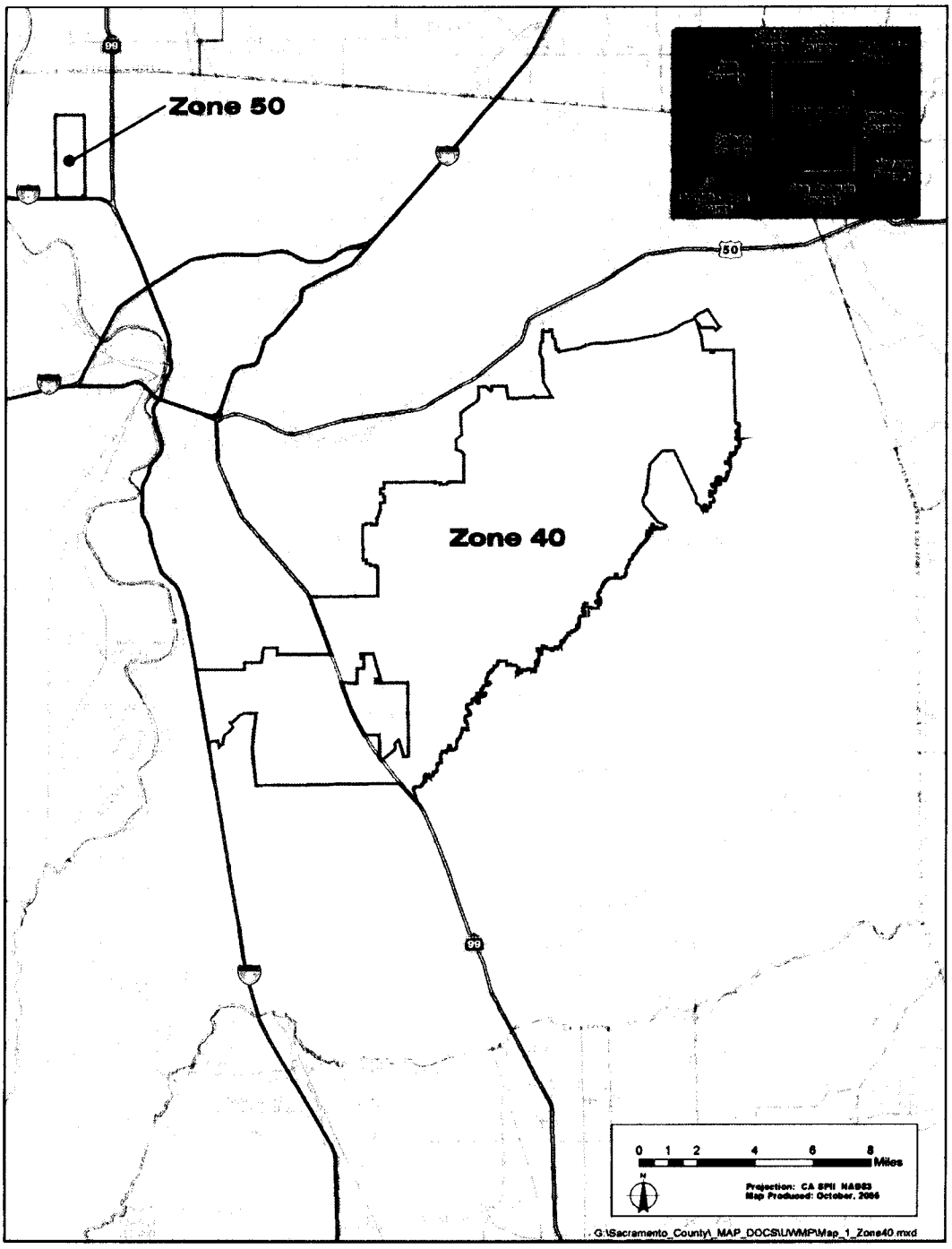
or inhabitants within the zone." The boundaries and scope of Zone 40's activities were expanded in April 1999 by Resolution WA-2331. Zone 40's scope now includes the use of recycled water in conjunction with surface water and groundwater. Upon completion of construction of Zone 40 water facilities, the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

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

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

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

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



1.3.7 Formation and Purpose of Zone 50

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

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

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

1.4 Demographics

Water Code section 10631.

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

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

1.4.1 Population

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

1.4.2 Climate

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

Table 1-2: Population - Current and Projected

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	134,307	182,422	239,567	288,652	337,500	

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

Table 1-3: Climate

	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	1.59	3.69	53.3	39.5
[illegible]	2.2	3.2	59.6	43.1
[illegible]	3.66	2.64	64.8	45.7
[illegible]	5.08	1.4	71.1	48.4
[illegible]	6.83	0.62	78.1	52.4
[illegible]	7.8	0.15	85.8	56.8
[illegible]	8.67	0.01	91.5	59.1
[illegible]	7.81	0.03	90.4	58.6
[illegible]	5.67	0.31	86.2	57
[illegible]	4.03	0.93	76.7	51.6
[illegible]	2.13	2.02	64	44.5
[illegible]	1.59	3.14	54	39.9
[illegible]	57.06	18.15	73	49.7

Notes:

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

Water Code section 10631 continued...

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

2. Water Supplies

2.1 Water Supply Sources

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

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

2.1.1 Zone 40 Surface Water Supplies

Appropriative Water

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

CVP Supplies

SMUD 1 Assignment

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

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

SMUD 2 Assignment

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

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

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

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

2.1.2 Zone 50 Surface Water Supplies

City of Sacramento Wheeling/Wholesale Agreement

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

Natomas Mutual Water Company Surface Water Entitlements (Natomas)

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

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

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

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

2.1.3 Other Sources of Surface Water

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

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

Table 2-1: Current and Planned Water Supplies – (AF/Year)						
[illegible]						
[illegible]	45,000	45,000	45,000	45,000	45,000	45,000
[illegible]	14,586	14,586	14,586	14,586	14,586	14,586
[illegible]	9,300	9,300	9,300	9,300	9,300	9,300
[illegible]	0	779	3,064	5,198	5,198	5,198
[illegible]	5,200	5,200	5,200	5,200	5,200	5,200
[illegible]	40,900	40,900	40,900	40,900	40,900	40,900
[illegible]	6,000	6,000	6,000	6,000	6,000	6,000
[illegible]	15,000	15,000	15,000	15,000	15,000	15,000
[illegible]	4,400	4,400	4,400	4,400	4,400	4,400

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

Water Code section 10631 (b) continued...

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

(1) A copy of any groundwater management plan adopted by the urban water Section 10750), or any other specific authorization for groundwater management.

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

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

2.2 Groundwater Supplies

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

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

North American River Basin

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

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

South American River Basin

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

Water Code section 10631 (b) continued...

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records. .

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

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

2.2.1 Groundwater Management Plans

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

SGA Groundwater Management Plan

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

Zone 40 Groundwater Management Plan

In October 2004, SCWA adopted the Zone 40 GMP. This GMP contains more detailed information about Zone 40's groundwater

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

Central Sacramento County Groundwater Management Plan

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

2.2.2 Groundwater Production

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

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

Table 2-2: Amount of Groundwater Pumped – (AF/Year)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
North American River Basin					
Northgate	1,025	1,097	950	1,097	1,297
Arden Park Vista[1]	3,899	4,305	4,084	3,936	4,393
South American River Basin					
Zone 40	20,022	22,306	22,949	22,745	25,790
Walnut Grove	n/a	n/a	n/a	n/a	76
Hood	39	39	89	94	95
% of Total Water Supply	92%	87%	87%	87%	88%

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

Table 2-3: Amount of Groundwater Projected to be Pumped - (AF/Year)

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
North American River Basin					
Northgate	1,300	1,300	1,300	1,300	1,300
Arden Park Vista	4,400	4,400	4,400	4,400	4,400
South American River Basin					
Zone 40	34,125	28,837	40,470	31,324	39,097
Walnut Grove	76	76	76	76	76
Hood	95	95	95	95	95
Locke (potential service area)	100	100	100	100	100
Delta Estates (potential service area)	50	50	50	50	50
% of Total Water Supply	68%	39%	44%	32%	36%

Water Code section 10631 continued...

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

(1) An average water year.

(2) A single dry water year.

(3) Multiple dry water years.

2.3 Water Reliability

EFFECTS OF WFA IMPLEMENTATION

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

Water Code section 10631 continued...

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

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

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

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

WATER YEAR TYPES

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

FUTURE FACILITIES AND OPERATIONS

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

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

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

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

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

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

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

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

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

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

WATER USE BY YEAR TYPE

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

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

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

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

Table 2-4: Supply Reliability for 2030 – (AF/Year)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	69,567	34,683	26,106	26,106	23,183	20,909
[illegible]	39,097	68,327	65,599	65,599	68,522	70,795
[illegible]	4,400	4,400	4,400	4,400	4,400	4,400
[illegible]	5,195	5,195	4,416	4,416	4,416	4,416
[illegible]	1,300	1,235	1,105	1,105	1,105	1,105
[illegible]	4,400	4,180	3,740	3,740	3,740	3,740
[illegible]	100	95	85	85	85	85
[illegible]	76	76	76	76	76	76
[illegible]	59	59	59	59	59	59
[illegible]	100	100	100	100	100	100
[illegible]	50	50	50	50	50	50
[illegible]	100%	95%	85%	85%	85%	85%

Table 2-5: Basis of Water Year Data		
[illegible]	**Base Year (s)**	**Historical Sequence**
[illegible]	1981	1961-1991
[illegible]	1989	
[illegible]	1987-1990	

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

Water Code section 10631

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

2.4 Transfer and Exchange Opportunities

Additional Water Demands

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

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

Other Water[1]	Transfer	✓	5,200		
Aerojet & Boeing	Exchange	✓	Under negotiation	✓	Under negotiation
American States Water Company	Exchange			✓	15,200
Cal-Am	Exchange			✓	5,000
Environmental Restoration along Lower Cosumnes River	Exchange	✓	5,000[2]		
SMUD	Transfer			✓	10,000
Total					

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

Aerojet & Boeing Agreements

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

American States Water Company Agreement

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

Cal-Am Agreement

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

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

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

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

SMUD Dry Year Water Requirements

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

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

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

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

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

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

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

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

2.5 Water Use by Customer-type

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

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

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

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

Table 2-9: Sales to Other Agencies – (AF/Year)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Water Sold to EGWS	4,453	4,697	6,551	7,202	7,321	7,321
Cal – Am (Rio del Oro)	2,500	5,000	5,000	5,000	5,000	5,000
American States - Westborough	2,500	5,000	5,000	5,000	5,000	5,000
American States – Replacement water	5,000	10,000	10,200	10,200	10,200	10,200
Total	16,453	26,707	26,766	28,422	28,546	28,551

Table 2-10: Additional Water Uses and Losses - (AF/Year)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]						
[illegible]						
[illegible]						
raw water						
recycled	4,400	4,400	4,400	4,400	4,400	4,400
other (define)						
Unaccounted-for system losses (7.5 percent of total supply)	2,765	3,789	4,814	5,839	6,863	7,888
Total	7,165	8,189	9,214	10,239	11,263	12,288

Table 2-11: Total Water Use – (AF/Year)						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Water Code section 10631 continued...

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

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

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

2.6 Water Conservation

2.6.1 Demand Management Measures /Best Management Practices

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

Retail Areas are required to report on:

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

Wholesale Areas are required to report on:

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

Water Code section 10631 continued...

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

2.7 Water Supply Projects and Programs

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

2.7.1 Groundwater Facility Component

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

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

2.7.2 Surface Water Facility Component

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

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

Table 2-12: Future Water Supply Projects

		13	14,560	2005	50%	2008	100%
		13	14,560	2005	50%	2008	50%
		8	11,200	2006	100%		
		7	7,840	2006	50%	2008	100%
		13	14,560	2006	50%	2008	100%
		4	4,480	2010	100%		
		100	112,000	2010	50%	2019	100%
		13	14,560	2010	50%	2012	100%
		20	22,400	2006	50%	2011	100%
		6.5	7,280	2015	100%		
		0.5	560	2020	100%		
		13	14,560	2005	50%	2006	50%
		10	5,200	2006	20%	2009	80%

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

Water Code section 10631 continued...

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

2.7.3 Wholesale Water

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

Arden-Cordova System (ASWC)

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

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

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

Sacramento Suburban Water District

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

City of Sacramento

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

Fruitridge Vista Water Company

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

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

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ASWC	0	0	0	0	0
Sac Suburban	0	0	0	0	0
City of Sacramento	0	9,300	9,300	9,300	9,300
Fruitridge Vista Water Company	59	59	59	59	59

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

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ASWC	0	0	0	0	0
Sac Suburban	0	0	0	0	0
City of Sacramento	0	9,300	9,300	9,300	9,300
Fruitridge Vista Water Company	59	59	59	59	59

Table 2-15: Wholesale Supply Reliability - % of normal supply					
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ASWC	n.a.	n.a.	n.a.	n.a.	n.a.
Sac Suburban	n.a.	n.a.	n.a.	n.a.	n.a.
City of Sacramento	100%	100%	100%	100%	100%
Fruitridge Vista Water Company	100%	100%	100%	100%	100%

Table 2-16: Factors Resulting in Inconsistency of Wholesaler's Supply				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
No inconsistencies exist				