



2010

Urban Water Management Plan

October 2011




Engineers...Working Wonders With Water®

October 31, 2011

City of West Sacramento
1110 West Capitol Ave., 2nd Floor
West Sacramento, CA 95691

Attention: Mr. Vin Cay

Subject: 2010 Urban Water Management Plan

Dear Mr. Cay:

We are pleased to submit for your use, the adopted City of West Sacramento (City) 2010 Urban Water Management Plan (UWMP). This version of the UWMP includes the changes made as a result of the public review process and represents the final printed version of the 2010 UWMP as adopted on October 19, 2011. The 2010 UWMP was prepared in accordance with the Urban Water Management Planning Act (UWMPA) of 1983 and subsequent amendments, as well as other applicable regulations. The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions.

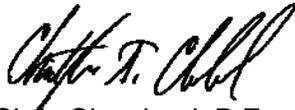
The report is organized according to the recommended format established by the California Department of Water Resources (DWR) as follows:

- Chapter 1 – Plan Preparation
- Chapter 2 – System Description
- Chapter 3 – System Demands
- Chapter 4 – System Supplies
- Chapter 5 – Water Supply Reliability and Water Shortage Contingency Planning
- Chapter 6 – Demand Management Measures
- Chapter 7 – Climate Change
- Chapter 8 – Completed Urban Water Management Plan Checklist

We would like to extend our thanks to you and other City Staff whose courtesy and cooperation were valuable components in completing this plan.

Sincerely,

CAROLLO ENGINEERS, INC.



Chris Cleveland, P.E.
Vice President



Tommy A. Greci, P.E.
Project Manager

Enclosures: 2010 Urban Water Management Plan



10/31/2011



10/31/2011

City of West Sacramento

**2010 URBAN WATER
MANAGEMENT PLAN**

October 2011



2010 URBAN WATER MANAGEMENT PLAN

TABLE OF CONTENTS

	<u>Page No.</u>
Chapter 1 PLAN PREPARATION	1-1
1.1 PURPOSE	1-1
1.2 BACKGROUND	1-1
1.2.1 Urban Water Management Planning Act	1-1
1.2.2 Previous Urban Water Management Plan	1-2
1.2.3 Resource Maximization/Import Minimization	1-2
1.3 PLAN PREPARATION	1-3
1.3.1 Coordination	1-3
1.3.2 Plan Adoption, Submittal, and Implementation	1-5
1.4 ABBREVIATIONS AND DEFINITIONS	1-5
Chapter 2 SYSTEM DESCRIPTION	2-1
2.1 SERVICE AREA PHYSICAL DESCRIPTION	2-1
2.1.1 Description of Transmission, Treatment, and Distribution Facilities	2-4
2.1.2 Climate	2-5
2.2 SERVICE AREA POPULATION	2-6
2.2.1 Other Demographic Factors	2-8
2.3 PLANNED DEVELOPMENT	2-8
Chapter 3 SYSTEM DEMANDS	3-1
3.1 BASELINES AND TARGETS	3-1
3.1.1 Baseline	3-1
3.1.2 Targets	3-4
3.1.3 Summary of Baselines and Targets	3-5
3.2 WATER DEMANDS	3-6
3.2.1 Sales to Other Agencies	3-11
3.2.2 Other Water Demands	3-12
3.2.3 Total Water Demands	3-12
3.2.4 Lower Income Household Water Use Projections	3-13
3.3 WATER DEMAND PROJECTIONS	3-14
3.4 WATER USE REDUCTION PLAN	3-15
Chapter 4 SYSTEM SUPPLIES	4-1
4.1 WATER SOURCES	4-1
4.1.1 Water Supply Facilities	4-1
4.1.2 Water Rights	4-2
4.2 GROUNDWATER	4-6
4.3 TRANSFER OPPORTUNITIES	4-8

4.4	DESALINATED WATER OPPORTUNITIES	4-9
4.5	RECYCLED WATER OPPORTUNITIES.....	4-9
4.5.1	Wastewater Collection, Treatment Systems, and Disposal	4-10
4.5.2	Current and Projected Recycled Water Use.....	4-11
4.5.3	Potential Uses of Recycled Water	4-12
4.5.4	Encouraging Recycled Water Use.....	4-13
4.5.5	Recycled Water Use Optimization Plan.....	4-13
4.6	FUTURE WATER PROJECTS.....	4-13
Chapter 5 WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLAN		5-1
5.1	WATER SUPPLY RELIABILITY	5-1
5.2	WATER QUALITY	5-3
5.3	WATER SHORTAGE CONTINGENCY PLANNING	5-5
5.3.1	Stages of Action in Response to Water Supply Shortages.....	5-6
5.3.2	Residential Users and Unmetered Commercial/Industrial Uses.....	5-13
5.3.3	Mechanism for Determining Actual Reductions in Water Use.....	5-14
5.3.4	Analysis of Revenue Impacts of Reduced Sales during Shortages.....	5-14
5.3.5	Draft Ordinance	5-15
5.4	DROUGHT PLANNING	5-15
5.4.1	Minimum Supply Available for the Next Three Years	5-17
5.4.2	Supplies and Demands for Average Water Year.....	5-18
5.4.3	Supplies and Demands for a Single-Dry Water Year	5-18
5.4.4	Supply and Demand for Multiple-Dry Water Year Periods	5-19
Chapter 6 DEMAND MANAGEMENT MEASURES.....		6-1
6.1	INTRODUCTION.....	6-1
6.1.1	City Commitment to Water Conservation	6-2
6.2	DMM 1: WATER SURVEY PROGRAMS FOR SINGLE-FAMILY AND MULTI- FAMILY RESIDENTIAL CUSTOMERS.....	6-4
6.3	DMM 2: RESIDENTIAL PLUMBING RETROFIT.....	6-5
6.4	DMM 3: SYSTEM WATER AUDITS, LEAK DETECTION, AND REPAIR.....	6-6
6.5	DMM 4: METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS.....	6-7
6.6	DMM 5: LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES.....	6-8
6.7	DMM 6: HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS	6-10
6.8	DMM 7: PUBLIC INFORMATION PROGRAMS.....	6-10
6.9	DMM 8: SCHOOL EDUCATION PROGRAMS.....	6-11
6.10	DMM 9: CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL ACCOUNTS	6-12
6.11	DMM 10: WHOLESALE AGENCY PROGRAMS	6-13
6.12	DMM 11: CONSERVATION PRICING	6-13
6.13	DMM 12: WATER CONSERVATION COORDINATOR	6-14
6.14	DMM 13: WATER WASTE PROHIBITIONS	6-15
6.15	DMM 14: RESIDENTIAL ULTRA-LOW FLUSH TOILET REPLACEMENT PROGRAMS	6-17

Chapter 7	CLIMATE CHANGE	7-1
Chapter 8	COMPLETED UWMP CHECKLIST	8-1

APPENDICES

- APPENDIX A – Outreach Documentation for Plan Preparation
- APPENDIX B – Adoption Documentation
- APPENDIX C – Water Rights Permits, Contracts, Agreements
- APPENDIX D – Emergency/Disaster Response Plan
- APPENDIX E – No Waste Ordinance and City Water Conservation Code
- APPENDIX F – Water Efficient Landscape Ordinance

LIST OF TABLES

Table 1	Coordination with Appropriate Agencies (Guidebook Table 1)	1-4
Table 2	Climate Characteristics	2-5
Table 3	Population - Current and Projected (Guidebook Table 2)	2-6
Table 4	Base Period Ranges (Guidebook Table 13)	3-2
Table 5	Base Daily Per Capita Water Use – 10-Year Range (Guidebook Table 14)	3-3
Table 6	Base Daily Per Capita Water Use – 5-Year Range (Guidebook Table 15) ...	3-4
Table 7	Baseline and Targets Summary	3-6
Table 8	Water Deliveries – Actual 2005 (Guidebook Table 3)	3-7
Table 9	Water Deliveries – Actual 2010 (Guidebook Table 4)	3-8
Table 10	Water Deliveries – Projected 2015 (Guidebook Table 5)	3-9
Table 11	Water Deliveries – Projected 2020 (Guidebook Table 6)	3-10
Table 12	Water Deliveries – Projected 2025, 2030, 2035 (Guidebook Table 7)	3-11
Table 13	Sales to Other Water Agencies (Guidebook Table 9)	3-12
Table 14	Additional Water Uses and Losses (Guidebook Table 10)	3-12
Table 15	Total Water Use (Guidebook Table 11)	3-13
Table 16	Low Income Projected Water Demands (Guidebook Table 8)	3-14
Table 17	Retail Agency Demand Projections Provided to Wholesale Suppliers (Guidebook Table 12)	3-15
Table 18	Southport Backup Groundwater Well System	4-2
Table 19	City Surface Water Entitlements	4-3
Table 20	Water Supplies - Current and Projected (Guidebook Table 16)	4-6
Table 21	Wholesale Supplies – Existing and Planned Sources of Water (Guidebook Table 17)	4-6
Table 22	Historic Groundwater Pumping (Guidebook Table 18)	4-7
Table 23	Projected Groundwater Pumping (Guidebook Table 19)	4-8
Table 24	Transfer and Exchange Opportunities (Guidebook Table 20)	4-9
Table 25	Recycled Water – Wastewater Collection and Treatment (Guidebook Table 21)	4-10
Table 26	2010 Recycled Water Use Compared to 2005 UWMP Use Projections (Guidebook Table 24)	4-11
Table 27	Recycled Water – Potential Future Use (Guidebook Table 23)	4-12
Table 28	Methods to Encourage Recycled Water Use (Guidebook Table 25)	4-13
Table 29	Future Water Supply Projects (Guidebook Table 26)	4-14

Table 30	Factors Resulting in Inconsistency of Supply (Guidebook Table 29).....	5-3
Table 31	Water Quality - Current and Projected Water Supply Impacts (Guidebook Table 30)	5-5
Table 32	Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages (Guidebook Table 35)	5-6
Table 33	Water Shortage Contingency – Mandatory Prohibitions (Guidebook Table 36)	5-11
Table 34	Water Shortage Contingency – Consumption Reduction Methods (Guidebook Table 37)	5-12
Table 35	Water Shortage Contingency – Penalties and Charges (Guidebook Table 38)	5-13
Table 36	Water Shortage Contingency Consumption Limits for Unmetered Users...	5-14
Table 37	Water Shortage Contingency Consumption Limits for Metered Users.....	5-14
Table 38	Basis of Water Year Data (Guidebook Table 27).....	5-16
Table 39	Supply Reliability – Historical Conditions (Guidebook Table 28)	5-17
Table 40	Supply Reliability – Current Water Sources (Guidebook Table 31)	5-17
Table 41	Supply and Demand Comparison- Average Year (Guidebook Table 32) ...	5-18
Table 42	Supply and Demand Comparison - Single-Dry Year (Guidebook Table 33)	5-19
Table 43	Supply and Demand Comparison - Multiple-Dry Year (Guidebook Table 34)	5-20
Table 44	Demand Management Measure Overview	6-3

LIST OF FIGURES

Figure 1	Water Service Area	2-2
Figure 2	Historic Districts	2-3
Figure 3	Historical and Projected Population	2-7

PLAN PREPARATION**1.1 PURPOSE**

The California Water Code requires urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMPs) for submission to the California Department of Water Resources (DWR). The UWMPs, which must be filed every five years, must satisfy the requirements of the Urban Water Management Planning Act (UWMPA) of 1983, including amendments that have been made to the Act and other applicable regulations. The UWMPA requires urban water suppliers servicing 3,000 or more connections, or supplying more than 3,000 acre-feet (AF) of water annually, to prepare a UWMP.

The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions. This report, which was prepared in compliance with the California Water Code, and as set forth in the 2010 guidelines and format established by the DWR, constitutes the City of West Sacramento (City) 2010 UWMP.

1.2 BACKGROUND**1.2.1 Urban Water Management Planning Act**

In 1983, State Assembly Bill 797 modified the California Water Code Division 6 by creating the UWMPA. Several amendments to the original UWMPA, which were introduced since 1983, have increased the data requirements and planning elements to be included in the UWMPs.

Initial amendments to the UWMPA required that total projected water use be compared to water supply sources over the next 20 years, in 5-year increments. Recent DWR guidelines also suggest projecting through a 25-year planning horizon to maintain a 20-year timeframe until the next UWMP update has been completed.

Other amendments require that UWMPs include provisions for recycled water use, demand management measures (DMMs), and a water shortage contingency plan. The UWMPA requires inclusion of a water shortage contingency plan, which meets the specifications, set forth therein. Recycled water was added in the reporting requirements for water usage and figures prominently in the requirements for evaluation of alternative water supplies, when future projections predict the need for additional water supplies. Each urban water purveyor must coordinate the preparation of the water shortage contingency plan with other urban water purveyors in the area, to the extent practicable. Water suppliers must also describe their water DMMs that are being implemented or are scheduled for implementation.

In addition to the UWMPA and its amendments, there are several other regulations that are related to the content of the UWMP. In summary, the key relevant regulations are:

- Assembly Bill 1420: Requires implementation of DMMs/Best Management Practices (BMPs) and meeting the 20-by-2020 targets to qualify for water management grants or loans.
- Assembly Bill 1465: Requires water suppliers to describe opportunities related to recycled water use and stormwater recapture to offset potable water use.
- Amendments SB 610 (Costa, 2001) and AB 901 (Daucher, 2001) (Effective beginning January 1, 2002): Require counties and cities to consider information relating to the availability of water to supply new large developments by mandating the preparation of further water supply planning (Daucher) and Water Supply Assessments (Costa).
- Senate Bill 1087: Requires water suppliers to report single-family residential (SFR) and multi-family residential (MFR) projected water use for lower income areas separately.
- Amendment SB 318 (Alpert, 2004): Requires the UWMP to describe the opportunities for development of desalinated water, including but not limited to, ocean water, brackish water, and groundwater, as long-term supply.
- AB 105 (Wiggins, 2004): Requires urban water suppliers to submit their UWMPs to the California State Library.
- Senate Bill x7-7: Requires development and use of new methodologies for reporting population growth estimates, base per capita use, and water conservation. This water bill also extended the 2010 UWMP adoption deadline for retail agencies to July 1, 2011. An agency can choose from four methods to establish their interim (2015) and year 2020 water conservation targets.

1.2.2 Previous Urban Water Management Plan

Pursuant to the UWMPA, the City previously prepared an UWMP in 2005, which was approved and adopted on September 7, 2005. Following adoption, the 2005 UWMP was submitted to and formally approved by DWR. This 2010 UWMP report serves as an update to the 2005 UWMP.

1.2.3 Resource Maximization/Import Minimization

The City recognizes the importance of maintaining a high quality reliable water supply. Although water is a renewable resource, it is limited. A long-term reliable supply of water is essential to protect the local and state economy. The main focus for the City is to provide high quality water, maximize the efficient use of water, and promote conservation.

1.3 PLAN PREPARATION

This 2010 UWMP was prepared in compliance with the UWMPA (California Water Code §10610 et seq.) and the Water Conservation Bill of 2009 (SBX7-7). The 2010 UWMP was prepared by Carollo Engineers. Contact information for the City and Carollo Engineers is included in the Contact Sheet provided at the beginning of this document.

This section includes specific information on how the UWMP was prepared, coordinated with other agencies and the public, adopted, and implemented.

1.3.1 Coordination

The UWMPA requires that the UWMP identify the water agency's coordination with appropriate nearby agencies; see excerpt below.

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

10621 (b). Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

10635 (b). The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

The City coordinated its efforts with relevant agencies and parties to ensure that the data and issues discussed in the plan are presented accurately. Table 1 summarizes how the UWMP preparation was coordinated. Appendix A contains copies of outreach documents.

The City is a member of the Water Resources Association of Yolo County (WRA), and therefore notified Yolo County of the UWMP update process. Yolo County was sent a notice of intention to adopt and will be sent a draft copy of the UWMP.

The City has worked with the cities of Sacramento, Roseville, the County of Sacramento, and the East Bay Municipal Utilities District to develop a Sacramento River Watershed Sanitary Survey. This was prepared in accordance with the California Surface Water Treatment Rule that requires public water supply agencies using surface water sources to conduct a Watershed Sanitary Survey for their water source.

Table 1 Coordination with Appropriate Agencies (Guidebook Table 1) 2010 Urban Water Management Plan City of West Sacramento							
Coordinating Agencies	Participated in Developing the Plan	Commented on the Draft	Attended Public Meetings	Was Contacted for Assistance	Was Sent a Copy of the Draft Plan	Was Sent a Notice of Intention to Adopt	Not Involved No Information
Dunnigan Water District			✓				
Yolo County			✓		✓	✓	
General Public		✓	✓				
Unocal			✓				
Norcal Beverage Company			✓				
United States Bureau of Reclamation					✓		
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.							

The City also provided formal written notification to Yolo County that the City's UWMP was being updated for 2010. In accordance with the UWMPA, this notification was provided at least 60 days prior to the public hearing of the plan. Copies of the final UWMP will be provided to Yolo County no later than 30 days after its submission to DWR.

1.3.1.1 Public Participation

The UWMPA requires that the UWMP show the water agency solicited public participation; see excerpt below.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published ... After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

On September 7, 2011 and October 5, 2011, the City placed a notice in the News Ledger (City newspaper) stating that its UWMP was being updated and that a public hearing would be conducted to address comments and concerns from members of the community. The notice stated that a public review period would be scheduled through October 14, 2011. A copy of this notification is included in Appendix A. The Draft 2010 UWMP was made

available for public inspection at the City of West Sacramento's City Hall, located at 1110 West Capitol Avenue, 2nd floor, as well as the City's website.¹

The City held a workshop on September 7, 2011. The workshop provided an opportunity for the City's customers, residents, and employees to learn and ask questions about the current and future water supply of the City. At the workshop, the 2010 UWMP was discussed as well as implementation of the water reduction plan.

In addition, the City directly contacted three of the largest water user stakeholders in the service area, Unocal, Norcal Beverage Company, and the City Parks Department, and invited them specifically to attend this public hearing to voice their comments. The Dunnigan Water District, which purchases water from the City, was also invited to the public hearing.

1.3.2 Plan Adoption, Submittal, and Implementation

The City prepared this 2010 UWMP during the spring and summer of 2011. The plan adopted at a public hearing by its City Council on, October 19, 2011 (see City Resolution in Appendix B). The City submitted the UWMP to DWR in November 2011. Within 30 days of submitting the UWMP to DWR, the adopted UWMP will be available for public review during normal business hours at the locations specified for viewing of the Draft 2010 UWMP, submitted to the California State Library, and submitted to Yolo County and the United States Bureau of Reclamation.

1.3.2.1 Implementation

Review of the City's 2005 UWMP indicated that the implementation plan and schedule of action items by the City through 2009 were accomplished. Updated implementation plans and schedules for on-going and/or future actions are provided in this 2010 UWMP.

1.4 ABBREVIATIONS AND DEFINITIONS

To conserve space and improve readability, the following abbreviations are used in this report. The abbreviations are spelled out in the text the first time the phrase or title is used in each chapter and subsequently identified by abbreviation only.

AF	acre-feet
AFY	acre-feet per year
BBWTP	Bryte Bend Water Treatment Plant
BMPs	Best Management Practices
BuRec	U.S. Bureau of Reclamation

¹ www.cityofwestsacramento.org

CEQA	California Environmental Quality Act
cfs	Cubic feet per second
City	City of West Sacramento
County	Yolo County
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
DMMs	Demand Management Measures
DWR	California Department of Water Resources
DWSAP	Drinking Water Source Assessment Program
EBMUD	East Bay Municipal Utility District
ETo	Evapotranspiration
°F	Degrees Fahrenheit
gpcd	Gallons per capita per day
LNWI	Lower Northwest Interceptor
MFR	Multi-Family Residential
NEPA	National Environmental Policy Act
NDWA	North Delta Water Agency
NPDES	National Pollutant Discharge Elimination System
RHNP	Regional Housing Needs Plan
RWA	Regional Water Authority
RWQCB	Regional Water Quality Control Board
SACOG	Sacramento Area Council of Governments
SFR	Single-Family Residential
SRCSD	Sacramento Regional County Sanitation District
SWRCB	State Water Resources Control Board

UPRR	Union Pacific Rail Road
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Planning Act
WTP	Water Treatment Plant
WWTP	Wastewater Treatment Plant

SYSTEM DESCRIPTION

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the water purveyor's service area and various aspects of the area served including climate, population, and other demographic factors; see excerpt below.

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.

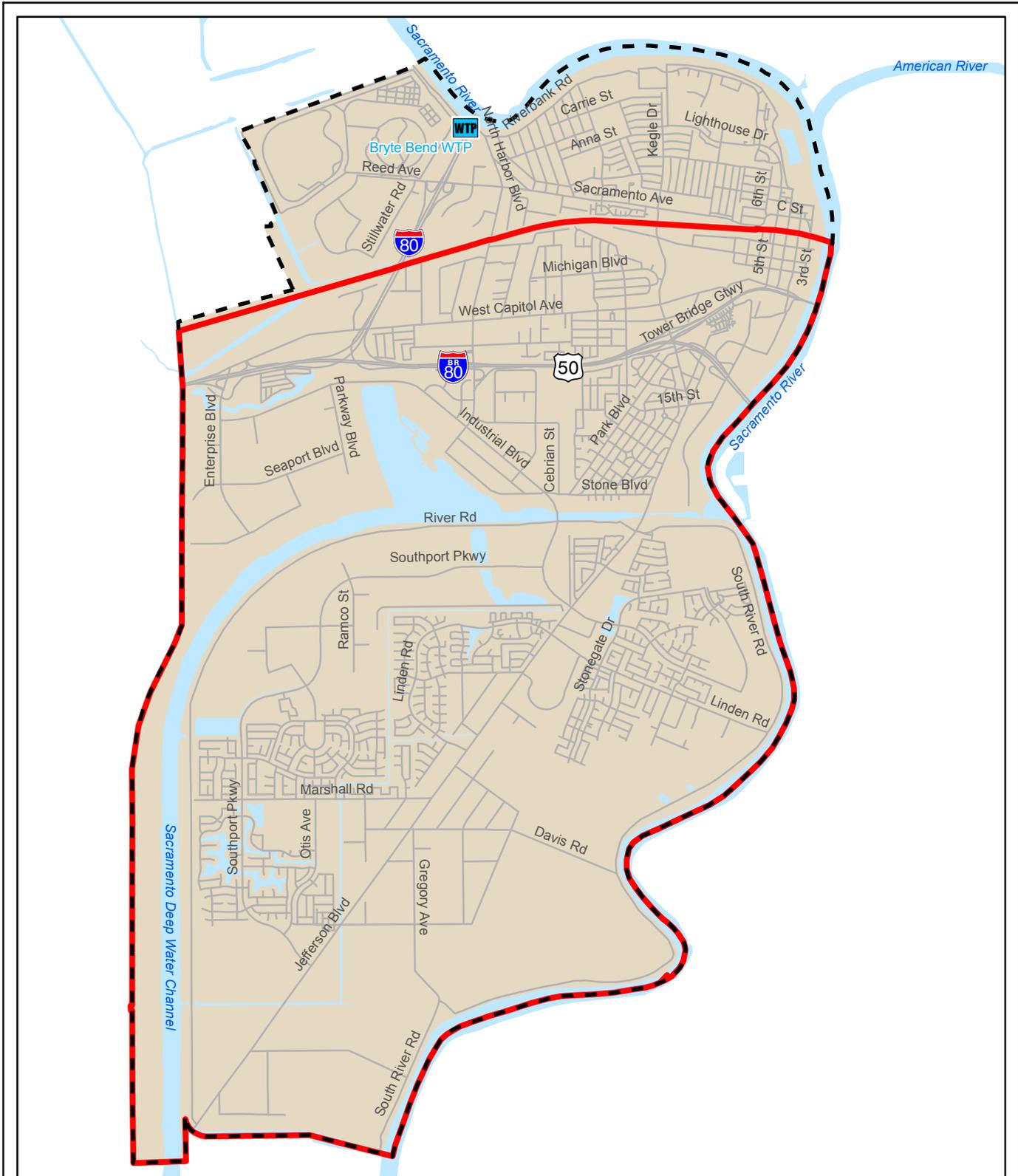
2.1 SERVICE AREA PHYSICAL DESCRIPTION

The City of West Sacramento (City) is located in the eastern part of Yolo County in California's Central Valley. The City is bounded on its northern, eastern, and western sides by water bodies, including the Sacramento River (north and east) and the Sacramento River Deep Water Channel and Yolo Bypass (west). The closest neighboring cities are Sacramento to the north and east, Davis to the west, and Woodland to the northeast. The City is part of a four county metropolitan area that includes Yolo County, Sacramento County, and portions of Placer County and El Dorado County.

The City limits extend from the Sacramento River and Tule Lake Road on the north, the Sacramento River on the east, Shangri-La Slough on the south, and the Yolo Bypass on the west. The City's service area boundary is contiguous with the City limits as shown in Figure 1.

Lands north of the Sacramento Deep Water Channel bound by the Sacramento River and Interstate 80 are considered the north area, including Washington/Broderick and Bryte, which are older, well-established neighborhoods. Lands south and east of the Sacramento Deep Water Channel are considered the Southport area. The historic industrial and farming community of West Sacramento occupied the central part of the present-day city north of the deep-water channel, stretching from the Sacramento River in the east to the Yolo Bypass in the west. Figure 2 shows the City's historic districts.

The north area includes a mix of residential, commercial, and industrial development. There is a large industrial development located in the southwestern portion of the north area that has high fire protection demands.



Legend

-  Bryte Bend WTP
-  Streets
-  City Limits/Water Service Area
-  North Delta Water Agency Boundary

-  Water Right/CVP Contract POU
-  Waterways

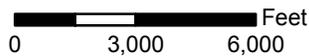
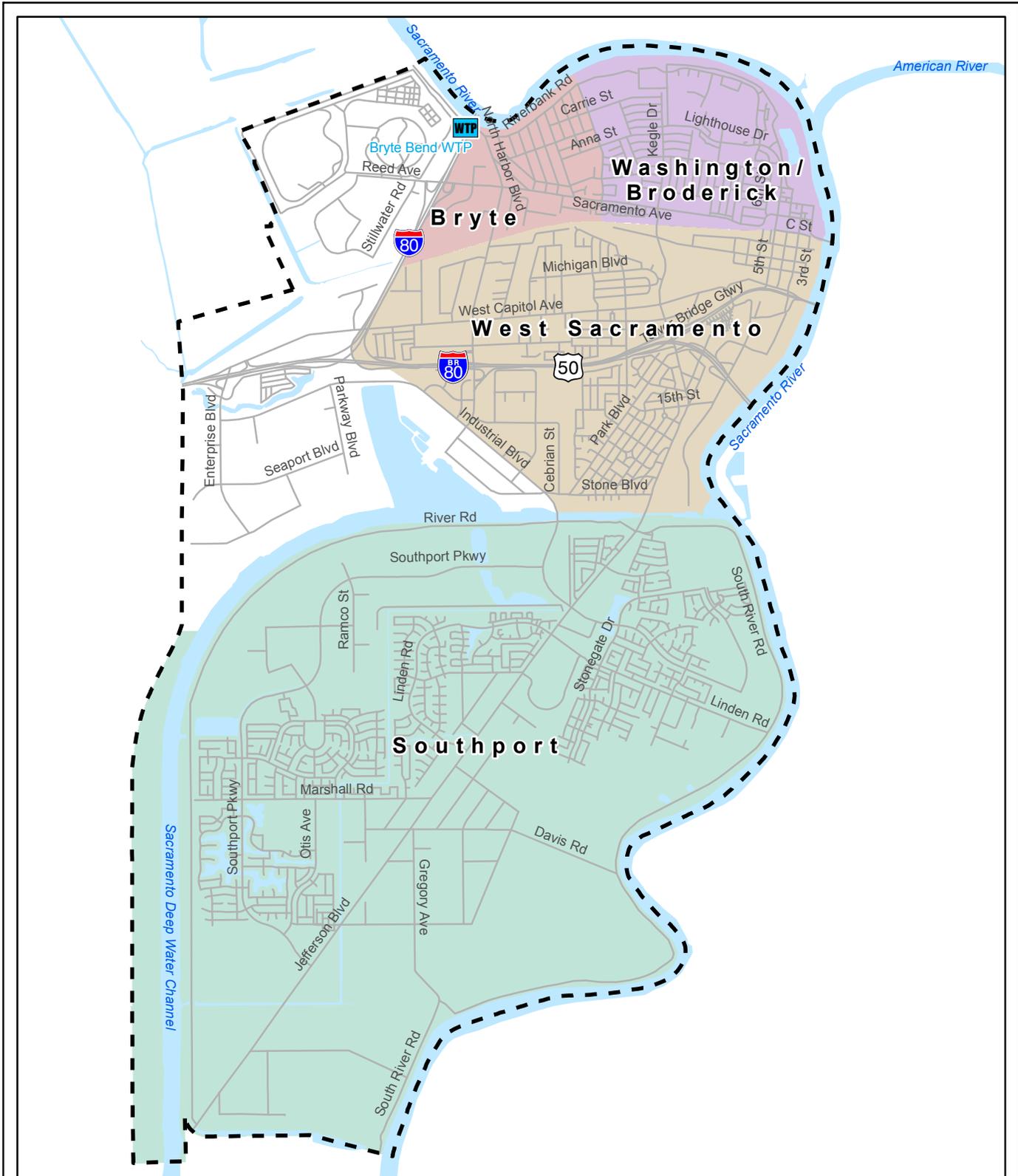


Figure 1
Water Service Area
 2010 Urban Water Management Plan
 City of West Sacramento





Legend

-  Bryte Bend WTP
-  Streets
-  City Limits/Water Service Area
-  Waterways

Historic Districts

-  Bryte
-  Southport
-  Washington/Broderick
-  West Sacramento

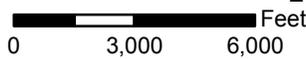


Figure 2
Historic Districts
 2010 Urban Water Management Plan
 City of West Sacramento



Residential land uses include single-family residential (including mobile homes) and multi-family residential (e.g., apartments, condominiums, and halfplexes). In 2008, land use in the City comprised of residential uses (2,854 acres), retail and service commercial uses (367 acres), office uses (125 acres), industrial uses (1,746 acres), public or quasi-public uses, including parks and recreation, schools, and other facilities (1,434 acres), agricultural/open space uses (2,660 acres), and vacant land (2,572 acres).² While vacant parcels still exist throughout the City, in terms of total acreage, the bulk of this land is in the Southport area outside of the City's urban core.

The City has a long history as an industrial center, and this history is still reflected in the City's current land use pattern. Industrial uses include light industrial establishments (e.g., warehouses, mini-storage businesses, light manufacturing facilities) as well as heavy industrial establishments (e.g., manufacturing, processing, assembling, research, trucking terminals, railroad facilities). Industrial development is focused mostly in the area near the Port of Sacramento and in the northwestern part of the city. The largest vacant industrial land is at Seaway International Trade Center and the Southport Industrial Park, south of the Deepwater Channel.

The Bridge District, near Raley Field is currently being developed. The Bridge District is located in the northeastern portion of the City, in an area surrounded by West Capitol Avenue to the north, Business 80 to the south, Jefferson Boulevard to the west, and the Sacramento River to the east. The land use of the new development is different from the land use represented in the City's Water Master Plan Update (May 2005) because a higher density of development is now projected for this area. This is the same area as the Triangle Area development, which was addressed in the Water Master Plan Update.

2.1.1 Description of Transmission, Treatment, and Distribution Facilities

In January 1987, the City was incorporated and assumed ownership and responsibility for operation of the water system from the East Yolo Community Services District, which had purchased the system in 1983 from the Washington Water and Light Company, a subsidiary of Citizens Utilities Company of California. In 2010, the City served approximately 12,362 active connections through its water supply, treatment, and distribution system (Source: West Sacramento Department of Water Resources Public Water System Statistics Calendar Year 2010).

Since its incorporation and initiation of operation of the water system, the City has made major improvements, the most significant being the construction of the Bryte Bend Water Treatment Plant (BBWTP) in 1987-1988, and expansion in 2003-2004. The BBWTP uses a treatment process consisting of chemical coagulation, Actiflo® high rate clarification, dual media granular activated carbon filtration, and chlorine disinfection. At this location, treated water is pumped to customers and reservoirs via the distribution system. The BBWTP

² General Plan Public Review Draft Background Report, September 2009.

allowed the City to convert from reliance on groundwater to a usage of surface water from the Sacramento River.

2.1.2 Climate

The City's climate is characterized generally as Mediterranean with an average annual rainfall of approximately 17 inches. Approximately 90 percent of the average annual precipitation occurs between December and March. Monthly precipitation has been as high as 9.46 inches and as low as 0.0 inches. The average summer temperature is a high of 95 degrees Fahrenheit (°F) and a low of 60°F. The average winter temperature is a high of 53°F and a low of 37°F. Normal relative humidity is 46 percent during the day and 82 percent at night. Evapotranspiration (ETo) values, which serve as indicators of how much water is required to maintain healthy agriculture and landscaping, range from 0.90 inches during January to 7.93 inches in July. Temperature, rainfall, and ETo averages for the City are presented in Table 2.

Table 2 Climate Characteristics 2010 Urban Water Management Plan City of West Sacramento					
Month	Standard Monthly Average ETo⁽¹⁾ (inches)	Monthly Average Rainfall⁽²⁾ (inches)	Monthly Average Temperature⁽²⁾ (°F)		
			Average	Minimum	Maximum
January	0.90	3.10	46.6	39.9	54.5
February	1.65	3.61	50.4	42.4	59.9
March	3.31	2.06	55.5	45.3	67.1
April	5.04	1.36	58.4	47.4	71.4
May	6.41	0.81	66.4	53.6	81.6
June	7.45	0.10	72.5	58.0	88.6
July	7.93	0.00	77.4	60.3	95.2
August	6.96	0.02	75.6	59.5	93.4
September	5.24	0.08	72.3	56.8	88.8
October	3.52	0.78	63.3	50.5	77.1
November	1.63	1.20	52.6	43.9	63.5
December	0.97	4.47	47.1	40.6	54.8
Annual		17.8			

Notes:

1. Source: California Irrigation Management Information System (CIMIS) Station 155. Represents monthly average ETo from January 1998 to February 2011.
2. Source: California Irrigation Management Information System (CIMIS) Station 155. Represents monthly average from January 2000 to February 2011.

2.2 SERVICE AREA POPULATION

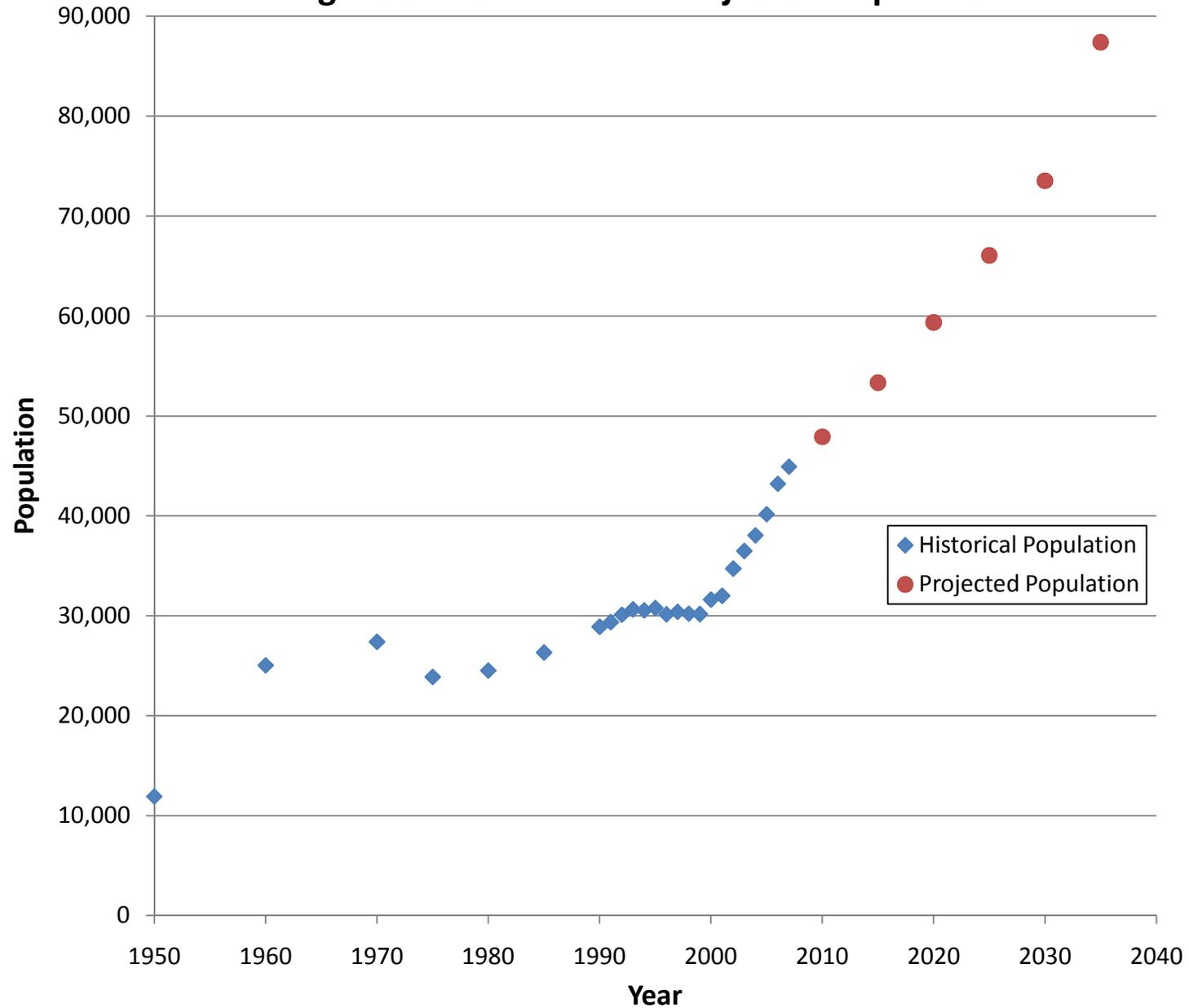
This section summarizes historical, current, and projected population trends in the City. Population projections are essential to the planning process and form the basis for most planning decisions, yet projecting future growth is far from an exact science given the complex set of variables that can affect the rate of growth. Typically, projections are developed by taking past patterns and combining them with assumptions regarding the future to obtain an estimate of future growth rates. These projections serve to provide the City insight on the type and quantity of future growth as well as guidance regarding future planning activities; therefore, such planning activities can only be as effective as the ability of local officials to anticipate population growth.

The City experienced its most dramatic growth during the 1950s, as population more than doubled from 11,900 to over 25,000. From 2000 to 2007, the City's population grew by more than 42 percent (31,615 to 44,928). The populations in Table 3 are from the Sacramento Area Council of Governments (SACOG) as presented in the City's General Plan Public Review Draft Background Report prepared in September 2009 as part of the update to the General Plan.

Table 3 Population - Current and Projected (Guidebook Table 2) 2010 Urban Water Management Plan City of West Sacramento							
Service Area Population ⁽¹⁾	Years						Data Source
	2010	2015	2020	2025	2030	2035	
	47,910	53,325	59,353	66,061	73,529	87,402	City's General Plan 2009 ⁽²⁾
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare of 2010 Urban Water Management Plan" by DWR.</p> <p>1. Service area population is defined as the population served by the distribution system.</p> <p>2. General Plan Public Review Draft Background Report 2009 Source: Sacramento Area Council of Governments (SACOG) Population Projections 2007 and Goodwin Consulting Group, Inc.</p>							

The historical data shown in Figure 3 are from the City's 2000 General Plan (1950-1997), the California Department of Finance (1998-1999 and 2001-2009), the 2000 United States Census (2000), and current SACOG projections for 2035; population estimates for the other time periods (e.g., 2010, 2015, 2020, 2025, and 2030) are derived by applying the average annual growth rate from 2007 to 2035 (2.2 percent in the City). According to SACOG, the City's population is projected to increase by 64 percent from 2007 to 2030, to more than 73,500 residents by 2030 and to more than 87,400 by 2035.

Figure 3. Historical and Projected Population



The City has initiated the process to update the General Plan. However, the General Plan update has been suspended for fiscal year 2011-2012 due to budgetary constraints. Work on completing the update is expected to resume in fiscal year 2012-2013. It should be noted that the information contained herein is based on the Public Review Draft Background Report that was prepared in September 2009 as part of the update to the General Plan. The 2015 UWMP will also reflect the updated General Plan population numbers.

2.2.1 Other Demographic Factors

This section summarizes and analyzes past and current demographic information from the City's General Plan Public Review Draft Background Report prepared in 2009. Analyzing demographic data yields important information about possible shifts in demand for City services. It should be noted that the demographic data for comparative purposes is based on the 2000 Census. Much of the new housing that provided for that growth was in a considerably higher price range than housing that existed in 2000. It is likely that the average income and education levels of the community have increased in this decade, while the average length of residence in the same house has dramatically decreased.

Between 1990 and 2000, the age distribution of City residents included a majority of residents being working age (18-59 years old), which is important from a labor force perspective. Nearly half (46.4 percent) of City households in 2000 were married couples and 36.0 percent of households included children. The educational attainment of the City residents suggests a largely "working class" community, with a majority (90.2 percent) of the population having less than a bachelor's degree in 2000.

As mentioned above, this section will be updated in the 2015 UWMP based on the updated General Plan.

2.3 PLANNED DEVELOPMENT

The UWMPA requires that the UWMP identify the major developments within the agency's service area that would require water supply planning; see excerpt below.

10910. (a) Any city or county that determines that a project, as defined in section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

10912. For the purpose of this part, the following terms have the following meanings:

10912 (a) "Project" means any of the following:

- (1) A proposed residential development of more than 500 dwelling units.*
- (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.*
- (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.*
- (4) A proposed hotel or motel, or both, having more than 500 rooms.*
- (5) A proposed industrial, manufacturing or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.*
- (6) A mixed-use project that includes one or more of the projects specified in this subdivision.*
- (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.*

The City has initiated the process to update the General Plan. However, the General Plan update has been suspended for fiscal year 2011-2012 due to budgetary constraints. Work on completing the update is expected to resume in fiscal year 2012-2013. It should be noted that the information below on planned development is based on the draft General Plan update that will be completed in the near future.

Future planned development at buildout (2030) within the City primarily consists of infill and redevelopment. The largest residential developments (single- and multi-family units) planned include the neighborhoods of Bridge District, The Rivers, Washington, Stone Lock, Northeast Southport, Southeast Southport, and Southwest Southport. All other planned residential development consists of less than 500 dwelling units. Nonetheless, this UWMP will serve as a foundational document for water analyses that may be required for future infill projects and water transactions, including water planning documentation required by California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and other environmental laws. At this time, the City has not planned other industrial developments that may qualify under the SB610 Water Supply Assessment requirements.

SYSTEM DEMANDS

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) identify the quantity of water supplied to the agency's customers including a breakdown by user classification; see excerpt below.

10631 (e) (1) Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), 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; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

This section describes the baseline (base daily per capita daily) water use, the interim and urban water use targets, water system demands, water demand projections, and water use reduction plan.

3.1 BASELINES AND TARGETS

The UWMPA requires that the UWMP identify the baseline water demand, urban water use target, and interim urban water use target for the City of West Sacramento (City); see excerpt below.

10608.20 (e) (1) An urban retail water supplier shall include in its urban water management plan...due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

The base daily per capita use is the first step in determining the City's various urban water use targets over the 20-year planning horizon. The current per capita use sets the "baseline" on which the urban and interim water use targets are determined. These targets are necessary to judge compliance with the 2020 use reductions set forth in the Water Conservation Bill of 2009.

3.1.1 Baseline

The first step in developing the baseline water use for the City is determining the applicable range and years for which the baseline average will be calculated. The UWMPA stipulates an agency may use either a 10 or 15-year average to determine its baseline. If 10 percent of total water deliveries in 2008 were from recycled water, then the agency can use a

15-year average baseline. Since the City had no recycled water deliveries in 2008, a 10-year average was used for baseline determination. In addition to the 10-year baseline, a 5-year baseline is also calculated, which will be used to establish the minimum criteria for the City's use reduction targets. A summary of the 2008 total and recycled water deliveries, 10-year baseline range, and 5-year baseline range is included in Table 4.

Table 4 Base Period Ranges (Guidebook Table 13) 2010 Urban Water Management Plan City of West Sacramento			
Base	Parameter	Value	Units
10-Year Base Period	2008 total water deliveries	14,750	AFY
	2008 total volume of delivered recycled water	0	AFY
	2008 recycled water as a percent of total deliveries	0	Percent
	Number of years in base period	10	Years
	Year beginning base period range	1999	
	Year ending base period range	2008	
5-Year Base Period	Number of years in base period	5	Years
	Year beginning base period range	2003	
	Year ending base period range	2007	
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.			

The data used to calculate the 10-year baseline is included in Table 5. The UWMPA requires a continuous range, with the end of the range ending between December 31, 2004 and December 31, 2010, be used for baseline determination. If a City has process water data over the 10-year baseline period that meets UWMPA exclusion requirements, the City can exclude process water from the gross water use. The City does not currently have industrial process water data for the 10-year baseline. The City should revisit the 10-year baseline calculation in the 2015 UWMP to determine if process water can be excluded.

Table 5 Base Daily Per Capita Water Use – 10-Year Range (Guidebook Table 14) 2010 Urban Water Management Plan City of West Sacramento				
Calendar Year	Distribution System Population⁽¹⁾	Total Annual Water Diversions⁽²⁾ (AFY)	Daily Average Diversions (mgd)	Annual Daily Per Capita Water Use (gpcd)
1999	30,167	10,254	9.2	303
2000	31,615	10,818	9.6	305
2001	31,999	11,842	10.6	330
2002	34,721	11,716	10.5	301
2003	36,493	11,917	10.6	292
2004	38,059	13,621	12.1	319
2005	40,170	14,058	12.6	312
2006	43,219	14,555	13.0	301
2007	44,928	15,532	13.9	309
2008	46,492	14,750	13.1	282
Base Daily Per Capita Water Use				305
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <p>1. Source: City General Plan Public Review Draft Background Report, September 2009 (2001-2007 Department of Finance (DOF), 2008 Department of Water Resource Statistics, 2009 DOF, 2010 Sacramento Area Council of Governments.</p> <p>2. Source: U.S. Bureau of Reclamation. Statement of Monthly Water Deliveries and Charges for the City of West Sacramento.</p>				

The data used to calculate the 5-year baseline is included in Table 6. The UWMPA requires a continuous range, with the end of the range ending between December 31, 2007 and December 31, 2010, be used for baseline determination.

Table 6 Base Daily Per Capita Water Use – 5-Year Range (Guidebook Table 15) 2010 Urban Water Management Plan City of West Sacramento				
Calendar Year	Distribution System Population⁽¹⁾	Total Annual Water Diversions⁽²⁾ (AFY)	Daily Average Diversions (mgd)	Annual Daily Per Capita Water Use (gpcd)
2003	36,493	11,917	10.6	292
2004	38,059	13,621	12.1	319
2005	40,170	14,058	12.6	313
2006	43,219	14,555	13.0	300
2007	44,928	15,532	13.9	309
Base Daily Per Capita Water Use				306
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <p>1. Source: City General Plan Public Review Draft Background Report, September 2009 (2001-2007 Department of Finance (DOF), 2008 Department of Water Resource Statistics, 2009 DOF, 2010 Sacramento Area Council of Governments.</p> <p>2. Source: U.S. Bureau of Reclamation. Statement of Monthly Water Deliveries and Charges for the City of West Sacramento.</p>				

3.1.2 Targets

The UWMPA requires urban water suppliers to determine the interim and urban water use targets for 2015 and 2020, respectively. Four target methods have been developed, and identify the specific steps water suppliers shall follow to establish these targets. A brief description of each method, as well as the water use calculated using each methodology is included below.

3.1.2.1 Method 1 – 80 Percent of Base Daily Per Capita Water Use

Method 1 requires an urban water supplier to first determine the base daily per capita use. In order to determine the target using Method 1, 80 percent of the base daily per capita use (10-year base period) is calculated. Based on the 10-year baseline daily per capita use of 305 gallons per capita per day (gpcd) determined previously (Table 5), the target use for Method 1 is 244 gpcd.

3.1.2.2 Method 2 – Performance Standards

Method 2 requires water suppliers to use baseline commercial, industrial, institutional, indoor residential, and landscaped area water use to calculate a water use target. Based on

the nature of the data required to determine a target using Method 2, it is not feasible for the City to use this methodology.

3.1.2.3 Method 3 – 95 Percent of Hydrologic Region Target

Method 3 requires water suppliers to use the hydrologic region target to calculate a water use target for 2020. A map showing the California hydrologic regions and 2020 conservation goals is included in the final Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP. In order to determine the target using Method 3, 95 percent of the region-specific conservation goal is calculated. Based on a target of 176 gpcd for the Sacramento River region, the Method 3 target is 167 gpcd.

3.1.2.4 Method 4 – Savings by Water Sector

Method 4 identifies water savings obtained through identified practices and subtracts them from the base daily per capita water use value identified for the water supplier. The water savings identified that can be used to reduce the base daily per capita water use value include:

- Indoor residential use savings
- Metered savings
- Commercial, industrial, and institutional (CII) savings
- Landscape and water loss savings

To calculate the CII savings, a retail water supplier must have data for the entire baseline period used in the base daily per capita water use calculation. The City does not have metered water use data on CII connections over the base period; therefore, it is not feasible for the City to use this methodology. The City should revisit the 10-year baseline and Method 4 target calculations in the 2015 UWMP as data will be available over the 10-year baseline period.

3.1.2.5 Minimum Water Use Reduction Requirement

The final step in determining the applicability of the water use target for the City is to confirm that the water use targets meet the minimum reduction requirements as defined by the California Department of Water Resources (DWR). To confirm the target, the 5-year average baseline (306 gpcd) previously determined (Table 6) is used. In order to meet the minimum criteria, the chosen use 2020 target must fall below 95 percent of the 5-year baseline, which for the City is 291 gpcd.

3.1.3 Summary of Baselines and Targets

Based on the water use targets calculated above, the City's water use target for 2020 is 244 gpcd. Based on the 10-year baseline of 305 gpcd, the 2015 interim water use target is 275 gpcd. This 2020 target was determined using Method 1, which corresponds to 80

percent of the 10-year baseline. According to the DWR guidelines, the 2020 target is valid since it is less than the target confirmation criteria of 291 gpcd. A summary of the various baselines, use target determined based on various methodologies, and the final use target and interim target are summarized in Table 7.

Table 7 Baseline and Targets Summary 2010 Urban Water Management Plan City of West Sacramento								
Baselines⁽¹⁾ (gpcd)		Target Determination Methods (gpcd)				Minimum Reduction Requirement⁽⁶⁾ (gpcd)	Target⁽⁷⁾ (gpcd)	Interim Target⁽⁸⁾ (gpcd)
10-Year	5-Year	1⁽²⁾	2⁽³⁾	3⁽⁴⁾	4⁽⁵⁾			
305	306	244	NA	167	NA	291	244	275
Notes:								
1. Refer to Tables 4, 5, and 6 for source of data.								
2. Method 1 – 80 percent of the 10-year base daily per capita water use.								
3. Method 2 – Insufficient data is available to determine an Urban Water Use Target.								
4. Method 3 – 95 percent of the Regional Target.								
5. Method 4 – Insufficient data is available to determine an Urban Water Use Target.								
6. Defined as 95 percent of the 5-year base daily per capita water use.								
7. Urban Water Use Target determined using Method 1.								
8. Interim Urban Water Use Target defined as the average of the 10-year base per capita water use and Urban Water Use Target.								

3.2 WATER DEMANDS

Water demands served by the City are primarily residential, CII, and landscape irrigation. As of 2010, the City maintains approximately 1,996 water meters, which represents approximately a sixth of the total connections (12,362) in the service area. Consequently, estimates of water use are based largely on production data. The City classified these meters (2010) into the following categories: 511 single-family residential, zero multi-family residential, 1,248 commercial/institutional, zero industrial, and 237 landscape irrigation. Tables 8 and 9 describe the actual number of connections and associated annual water deliveries by customer sector for the years 2005 and 2010, respectively.

As indicated, the City is in the process of metering its service connections, and completed metering of 511 of its single-family customers from unmetered accounts between 2005 and 2010. The City expects to have completed metering its connections by January 2019. Volumetric deliveries for non-metered users are not measured or recorded by the City; non-metered service connections are currently charged a flat rate for their service. Total deliveries, however, are measured and included in the tables below. Non-metered water deliveries by customer sector were interpolated based on the City's metered usage patterns in 2010.

**Table 8 Water Deliveries – Actual 2005 (Guidebook Table 3)
2010 Urban Water Management Plan
City of West Sacramento**

	2005				
	Metered		Not Metered		Total
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY ⁽¹⁾	Deliveries AFY
Single-Family Residential	0	0	10,511	4,813	4,813
Multi-Family Residential	0	0	1,036	1,660	1,660
Commercial/Institutional ⁽²⁾	1,338	5,430	5	1,734	7,164
Industrial	0	0	0	0	0
Landscape Irrigation	0	0	0	0	0
Agriculture	0	0	0	0	0
Other ⁽³⁾	0	0	1	0	0
Total⁽⁴⁾	1,338	5,430	11,553	8,208	13,638

Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.

Source: 2005 DWR Public Water System Statistics and Water Supply/Production Data.

1. Unmetered water deliveries are not measured by the City. The multi-family unmetered deliveries is an estimate based on City deliveries to metered single-family customers in 2010, including usage factors to account for increased water consumptions typically found with unmetered connections (1.5 times) and multi-family accounts (3.5 times), as appropriate. Commercial/institutional deliveries comprise the difference between total unmetered deliveries and residential deliveries.
2. Commercial/Institutional includes industrial and landscape irrigation connections. While the City monitors the number of its landscape accounts (141 in year 2005), the City does not separate landscape and commercial/institutional delivery volumes. Therefore, the account and water delivery values listed here for commercial/institutional customer sector include landscape account and water delivery values.
3. Unmetered delivery volumes for the City's "other" accounts are unknown, and are accounted for in the delivery volumes estimated for the City's other customer sectors.
4. Includes system losses.

Table 9 Water Deliveries – Actual 2010 (Guidebook Table 4) 2010 Urban Water Management Plan City of West Sacramento					
	2010				
	Metered		Not Metered		Total
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY⁽¹⁾	Deliveries AFY
Single-Family Residential	511	156	9,871	4,520	4,676
Multi-Family Residential	0	0	489	784	784
Commercial/Institutional ⁽²⁾	1,485	4,995	6	2,652	7,647
Industrial	0	0	0	0	0
Landscape Irrigation	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total⁽³⁾	1,996	5,151	10,366	7,956	13,107

Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.
Source: 2005 DWR Public Water System Statistics and Water Supply/Production Data.

1. Unmetered water deliveries are not measured by the City. The residential unmetered deliveries listed in this table are estimates based on City deliveries to metered single-family customers in 2010, including usage factors to account for increased water consumptions typically found with unmetered connections (1.5 times) and multi-family accounts (3.5 times), if appropriate. Commercial/institutional deliveries comprise the difference between total unmetered deliveries and residential deliveries.
2. Commercial/Institutional includes industrial and landscape irrigation connections. While the City monitors the number of its landscape accounts (237 in year 2010), the City does not separate landscape and commercial/institutional delivery volumes. Therefore, the account and water delivery values listed here for commercial/institutional customer sector include landscape account and water delivery values.
3. Includes system losses.

Future account and water use projections (Tables 10, 11, and 12) are based on the 2015 and 2020 per capita water use targets and projected population growth. The projections include system water losses. The water demands for year 2015 were developed by multiplying the projected 2015 population by the City's 2015 interim water use target (275 gpcd). The projected annual water demands for year 2020 through 2035 were developed by multiplying the projected population by the City's 2020 water use target (244 gpcd).

To project the number of connections per customer sector, it was assumed that the number of connections will grow consistently with the projected water demands; this is based on the relative distribution of customer types, accounts, and water use reported for 2010.

However, the customer sector water deliveries in Tables 10, 11, and 12 are only general

estimates of projected use, and may vary significantly based on future development, water conservation measures taken by each customer sector, and future metering of service connections. Ultimately, the implementation, magnitude, and type of future development will determine the distribution of water use per customer sector. As the City continues to meter its service connections, more accurate demand and delivery data may be collected and the values listed below may be refined.

Table 10 Water Deliveries – Projected 2015 (Guidebook Table 5) 2010 Urban Water Management Plan City of West Sacramento					
	2015				
	Metered		Not Metered		Total
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY⁽¹⁾	Deliveries AFY
Single-Family Residential	8,089	4,100	3,467	1,757	5,857
Multi-Family Residential	381	687	163	295	982
Commercial/Institutional ⁽²⁾	1,660	9,579	0	0	9,579
Industrial		0	0	0	0
Landscape Irrigation	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total^{(3),(4)}	10,130	14,366	3,630	2,052	16,418

Notes: “Guidebook Table X” refers to a specific table in the “Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan” by DWR.

1. Unmetered water deliveries are not measured by the City. The unmetered deliveries are estimates based on City deliveries to metered single-family customers in 2010, and scaled up to incorporated increased demands for 2015. These delivery volumes include usage factors to account for increased water consumption typically found with unmetered connections (1.5 times) and multi-family accounts (3.5 times), if applicable.
2. Commercial/Institutional includes industrial and landscape irrigation connections.
3. Includes system losses.
4. The City expects to be fully metered by 2019. The relatively metered/unmetered values above assumed that the City will have completed metering approximately 75 percent of its connections by 2015.

**Table 11 Water Deliveries – Projected 2020 (Guidebook Table 6)
2010 Urban Water Management Plan
City of West Sacramento**

	2020				
	Metered		Not Metered		Total
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	Deliveries AFY
Single-Family Residential	12,862	5,795	0	0	5,795
Multi-Family Residential	606	971	0	0	971
Commercial/Institutional ⁽¹⁾	1,848	9,477	0	0	9,477
Industrial	0	0	0	0	0
Landscape Irrigation	0	0	0	0	0
Agriculture	0	0	0	0	0
Other	0	0	0	0	0
Total⁽²⁾	15,315	16,243	0	0	16,243

Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.

1. Commercial/Institutional includes industrial and landscape irrigation connections.
2. Includes system losses.

Table 12 Water Deliveries – Projected 2025, 2030, 2035 (Guidebook Table 7) 2010 Urban Water Management Plan City of West Sacramento						
	2025		2030		2035	
	Metered		Metered		Metered	
Water Use Sectors	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY	# of accounts	Deliveries AFY
Single-Family Residential	14,315	6,450	15,934	7,179	18,940	8,534
Multi-Family Residential	674	1,081	750	1,203	892	1,430
Commercial/Institutional ⁽¹⁾	2,056	10,548	2,289	11,741	2,720	13,956
Industrial	0	0	0	0	0	0
Landscape Irrigation	0	0	0	0	0	0
Agriculture	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total⁽²⁾	17,045	18,079	18,972	20,123	22,552	23,920
<p><u>Notes:</u> “Guidebook Table X” refers to a specific table in the “Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan” by DWR.</p> <p>1. Commercial/Institutional includes industrial and landscape irrigation connections.</p> <p>2. Includes system losses.</p>						

3.2.1 Sales to Other Agencies

To date, the City has made no sales of treated water to other agencies, nor does the City anticipate any in the future (Table 13).

Table 13 Sales to Other Water Agencies (Guidebook Table 9) 2010 Urban Water Management Plan City of West Sacramento							
Agency	Water Use (AFY)						
	2005	2010	2015	2020	2025	2030	2035
None	0	0	0	0	0	0	0
Total, AFY	0	0	0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.							

3.2.2 Other Water Demands

Additional water uses and losses in the City's service area are presented in Table 14. Additional water losses are accounted for in Tables 8 through 12.

Table 14 Additional Water Uses and Losses (Guidebook Table 10) 2010 Urban Water Management Plan City of West Sacramento							
Water Use⁽¹⁾	2005	2010	2015	2020	2025	2030	2035
Saline Barriers	0	0	0	0	0	0	0
Groundwater Recharge	0	0	0	0	0	0	0
Conjunctive Use	0	0	0	0	0	0	0
Raw Water	0	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0	0
System Losses ⁽²⁾	0	0	0	0	0	0	0
Total, AFY	0						
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare of 2010 Urban Water Management Plan" by DWR.							
1. Any water accounted for in Guidebook Tables 3 through 7 are not included in this table.							
2. System losses are accounted for in Guidebook Tables 3 through 7.							

3.2.3 Total Water Demands

The City's total water demands, based on the figures presented in Tables 8-14 are summarized in Table 15 below.

Table 15 Total Water Use (Guidebook Table 11) 2010 Urban Water Management Plan City of West Sacramento							
Water Use	2005	2010	2015	2020	2025	2030	2035
Total water deliveries ⁽¹⁾	13,638	13,107	16,418	16,243	18,079	20,123	23,920
Sales to other water agencies	0	0	0	0	0	0	0
Additional water uses and losses	0	0	0	0	0	0	0
Total, AFY	13,638	13,107	16,418	16,243	18,079	20,123	23,920
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare of 2010 Urban Water Management Plan" by DWR. 1. Data from Tables 8 through 14.							

3.2.4 Lower Income Household Water Use Projections

The City has initiated the process of updating the General Plan. The update has been temporarily suspended. However, work on the General Plan update is expected to resume in fiscal year 2012-2013. The information contained below is based on the General Plan Public Review Draft Background Report prepared in September 2009 and the 2008 Housing Element.

The City's 2008-2013 Housing Element contains implementation programs and targets for affordable housing for low-income households. Targets applicable citywide in the Housing Element include:

- Five percent of newly constructed ownership housing shall be affordable for low-income households.
- Five percent of newly constructed multiple-family rental housing shall be affordable for very low-income households and five percent for low-income households.
- In the redevelopment areas, 30 percent of units developed or rehabilitated by the Redevelopment Agency shall be affordable for low-income and moderate households, of which half of the units must be affordable to very low-income households.
- In the redevelopment areas, 15 percent of units developed or rehabilitated by other entities be affordable (of which 40 percent must be affordable to very low-income households).

The City plans to pursue sufficient State and Federal funding to achieve the construction goals and assist in rehabilitating single-family and multi-family housing units. Two hundred and seventy-five affordable units were built between 2002 and 2006 through the City's

housing program. Information on the projected number of housing units was not included in the City's Housing Element beyond 2013.

The most recent Sacramento Area Council of Governments (SACOG) Regional Housing Needs Plan (RHNP) does not provide low-income projections beyond 2013. The RHNP allocated 829 low-income housing units for 2006-2013. The SACOG is in the process of updating the RHNP, which will include projections from 2013 to 2021.

Table 16 projects water demands associated with lower income water users through year 2035. These estimates were generated based on the 2008-2013 Housing Element Update for the City of West Sacramento, which includes lower income household information and are the City's best estimate of lower income water use at this point. It should be noted that the lower income demand projections presented in Table 16 are included in the total water use projections provided in Tables 8 through 13.

Table 16 Low Income Projected Water Demands (Guidebook Table 8) 2010 Urban Water Management Plan City of West Sacramento					
Low Income Water Demands	Water Use (AFY)				
	2015	2020	2025	2030	2035
Single Family Residential	2,299	3,250	3,617	4,026	4,786
Multi-Family Residential	385	545	606	675	802
Total, AFY	2,685	3,795	4,223	4,701	5,588
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare of 2010 Urban Water Management Plan" by DWR.					

3.3 WATER DEMAND PROJECTIONS

The City purchases a specified percentage of the U.S. Bureau of Reclamation (BuRec) diverted quantities during the months of June through September, and requires the City to purchase a certain minimum annual quantity. Since the City purchases water from the BuRec, the BuRec is considered a wholesale supplier by DWR. Table 17 includes demand projections provided to the BuRec.

Table 17 Retail Agency Demand Projections Provided to Wholesale Suppliers (Guidebook Table 12) 2010 Urban Water Management Plan City of West Sacramento							
Wholesaler	Contracted Volume⁽¹⁾ AFY	2010	2015	2020	2025	2030	2035
U.S. Bureau of Reclamation	23,600	13,107	16,418	16,243	18,079	20,123	23,600
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR. 1. 23,600 AFY is the combined water supply available through the City's appropriate right and BuRec contract.							

3.4 WATER USE REDUCTION PLAN

The City determined its 10-year baseline water use and urban water use targets in accordance with the methods described in the DWR 2010 UWMP Guidebook. After doing so, it is evident that the City has met its interim (275 gpcd) and target (244 gpcd) per capita water uses with a 2010 per capita consumption of 244 gpcd. If the City can maintain its water consumption rates, it will meet 2020 conservation goals. However, if consumption rates begin to rise above interim and target water use goals, the City must implement additional conservation measures to meet its 2020 goals.

Although the City has met its 2020 target, the City intends to continue and develop its water conservation programs. The savings associated with the demand management measures (DMMs) the City is currently implementing and the DMMs the City plans to implement will result in a reduction of water use, helping the City to maintain its the 2020 water use target. In all of its conservation programs, the City will avoid placing a disproportionate burden on any customer sector to maintain its 2020 water use target.

SYSTEM SUPPLIES

This section describes the sources of water available to the City of West Sacramento (City).

4.1 WATER SOURCES

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the agency's existing and future water supply sources for the next 20 years. The description of water supplies must include detailed information on the groundwater basin such as water rights, determination if the basin is in overdraft, adjudication decree, and other information from the groundwater management plan; see excerpt below.

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a) [to 20 years or as far as data is available]. 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:

10631 (b) (1) A copy of any groundwater management plan adopted by the urban water supplier...

10631 (b) (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 board has adjudicated the rights to pump groundwater...For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted...

10631 (b) (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 records.

10631 (b) (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 reasonable available, including, but not limited to, historic use records.

4.1.1 Water Supply Facilities

Historically, the sole source of water supplied to the City was groundwater. In 1988, the City's Bryte Bend Water Treatment Plant (BBWTP) went online and has been the main water supply facility for the City since that time. The BBWTP treats surface water from the Sacramento River. The BBWTP was expanded in 2003-2004 to a maximum capacity of 58 million gallons per day (mgd) (permitted capacity is 40 mgd November – March; 58 mgd April – October). The BBWTP uses a treatment process consisting of chemical coagulation,

Actiflo® high rate clarification, dual media granular activated carbon filtration, and chlorine disinfection.

With the BBWTP as the main water supply facility for the City, the water system is able to meet peak demands and provide a reliable water supply to customers. This treated surface water supply can be supplemented from groundwater wells in the Southport area if needed. Table 18 contains information on the backup Southport wells.

Table 18 Southport Backup Groundwater Well System 2010 Urban Water Management Plan City of West Sacramento	
Southport Treated Well Water Capacity, mgd	2.9
Well #19, gallons per minute (gpm)	1,000
Well #20, gpm	1,600
Notes: Treatment consists of chlorination, sequestering, oxidation-filtration, and sand removal.	

4.1.2 Water Rights

The City is entitled to 23,600 acre-feet per year (AFY) of surface water through combined appropriate rights and Federal water. Water is available through the authority of a permit granted by the State Water Resources Control Board (SWRCB) during the months of October through June. River water is purchased through a contract with the U.S. Bureau of Reclamation (BuRec) during the months of June through September. In addition, most of the City lies within the North Delta Water Agency (NDWA). This contract assures that the State will provide entities within the NDWA service area with a dependable water supply of adequate quantity and quality for municipal, industrial, and agricultural purposes. Each of the rights are described in detail below. Table 19 contains a summary of the City's entitlements.

4.1.2.1 Appropriative Water Right

The City has an appropriative right for diversion of surface water from the Sacramento River (Permit Number 18150), issued by the SWRCB. Under this right, the City is allowed to divert up to 18,350 AFY of water from the Sacramento River at the BBWTP intake structure. The permit was issued in 1981 and limits the diversion of water to the periods of January 1 through June 30, and September 1 through December 31 of each year, with a maximum rate of diversion for municipal use limited to 62 cubic feet per second (cfs), about 40 mgd.

Table 19 City Surface Water Entitlements 2010 Urban Water Management Plan City of West Sacramento		
Period of Use	Authority	Maximum Diversion
January to May	Appropriative Right	62 cfs
June	Appropriative Right BuRec Contract	62 cfs No Limit
July	BuRec Contract	No Limit
August	BuRec Contract	No Limit
September	Appropriative Right BuRec Contract	62 cfs No Limit
October to December	Appropriative Right	
Year-round	NDWA Contract	No Limit
Annual	Appropriative Right	18,350 AFY
	BuRec Contract and Appropriative Right (maximum combined diversions)	23,600 AFY
Notes: cfs = cubic feet per second, AFY = acre-feet per year		

Under the Permit, the City does not have the right to divert water during the high demand months of July and August. This diversion is authorized under the State's appropriative water rights law. As such, it is subject to reduction by the SWRCB, if necessary, due to drought conditions and/or to meet downstream water quality objectives. In the Permit, the SWRCB reserves the right to modify, reduce, or completely eliminate the authorized diversions because of variations in demand and hydrologic conditions within the Sacramento River Basin and/or the need to meet downstream water quality objectives in the Delta.

Under Standard Permit Term 91 (Term 91) of the City's appropriative right, diversions were reduced by 100 percent during the drought years of 1991 and 1992 between the months of June and October. In more recent years, Term 91 restrictions of varying severity and duration have become more typical; for the purposes of this UWMP, however, it is assumed that in a normal water year, Term 91 supply reductions will not impact the City's overall water supply strategy.

4.1.2.2 Bureau of Reclamation Contract

To obtain a firm surface water supply during the summer months, the City entered into a forty-year agreement with the BuRec (Contract No. 0- 07-20-W0187) that authorizes the City to divert from the Sacramento River a specified quantity of the water supply created by the Central Valley Project (CVP). The contract was entered into in 1980, and allows the City to divert up to 23,600 AFY from the Sacramento River of combined appropriative right and BuRec water. The total diversion amount of 23,600 AFY is equivalent to an annual average

day diversion of 21.1 mgd. The BuRec contract does not limit the maximum rate or months of diversion from the river by the City. The contract does obligate the City to pay for specified percentages of the diverted quantities during the months of June through September, and requires the City to purchase a certain minimum annual quantity. The City is required to purchase 20, 88, 100, and 100 percent of the water diverted during the months of June, July, August, and September, respectively, but it is not required to divert the purchased water. As a result, 20 percent and 100 percent of the water purchased in June and September, respectively, usually comes from BuRec or the the NDWA water supply entitlement, even though diversions from the City's appropriative right during these periods may be legal in normal water years. In some years, additional Term 91 limits have been imposed on the City's appropriative right, causing an increased percentage of diverted water to come from the BuRec supply and the NDWA supply.

The contract has an increasing schedule of minimum purchase starting at 105 acre-feet (AF) in 1981 and increasing to 9,680 AF after 40 years. The minimum purchase requirement in 2009 and 2010 was 8,860 AF. The City is maximizing beneficial use under its contract relative to provisions of the Central Valley Project Improvement Act (CVPIA) and regional cooperation.

Provisions in the contract allow for the renewal of the contract for successive periods and to increase or decrease the quantity of water available to the City. The City is required under the contract to prepare and implement a water conservation program for all water diverted from the river. This program must be submitted to BuRec for approval every five years. The 2005 UWMP was submitted to BuRec for review and approval to satisfy this requirement. Upon completion, this UWMP will be submitted to BuRec for review.

The contract states that BuRec will use all reasonable means to prevent shortages in the quantity of water available to the City. However, the contract also states that no liability shall accrue against the United States if shortages occur due to drought or other causes, which are beyond the control of the United States. During drought conditions, CVP diversions can be cut back significantly, as was the case in 1992 when they were reduced by 75 percent. The cutbacks experienced in 1992 are consistent with the CVP water shortage policy for the Sacramento River. The City used alternative water supplies, including the NDWA water, to supplement its supplies during these deficits.

4.1.2.3 North Delta Water Agency

The City has an additional water supply through the NDWA. The NDWA was formed in 1974 to protect the water resources in specific portions of Yolo, Solano, Sacramento, and San Joaquin counties. The majority of the City lies within the NDWA boundary, as shown on Figure 3. In 1981, the NDWA negotiated the "Contract Between the California Department of Water Resources for the Assurance of a Dependable Water Supply of Suitable Quality." This contract assures that the State, through both the SWP and CVP, will maintain within the NDWA a dependable water supply of adequate quantity and quality for

municipal, industrial, and agricultural purposes. In exchange for this assurance, the NDWA agreed to pay the State \$170,000 per year starting in 1982. The annual payments are subject to adjustments every five years. Payments to the NDWA are made by all landowners within the NDWA boundaries through annual tax assessments on their property, including the City.

In 1998, DWR and NDWA developed a Memorandum of Understanding (MOU) during the Bay-Delta Water Rights hearings conducted by the SWRCB (Appendix C). This MOU states that the 1981 contract between DWR and NDWA remains in full force and effect. DWR agreed that if diversions were modified to achieve flow objectives from the Bay-Delta Water Quality Control Plan, water within the NDWA would be subject to the existing obligation of DWR to provide water to the area subject to reasonable and beneficial use. A copy of the agreement between DWR and NDWA is included in Appendix C.

During the 1987-1992 drought years, contractors of the CVP and SWP received reduced deliveries from the projects. During these drought years, however, diversions from the Sacramento River by water purveyors within the NDWA, including the City, were not reduced because the City executed its rights under its NDWA contract. The City's surface water supply is assured under the NDWA contract, even if its appropriative right and BuRec contract deliveries are reduced. Use of this supply is limited to the portion of the City that is within NDWA boundaries. NDWA's northern boundary is along the Union Pacific Railroad (UPRR) tracks. The area within the City north of the UPRR tracks is served water obtained under appropriative/contractual entitlements. The volume of water available for use under this contract is not limited.

Table 20 summarizes the current and projected water supply sources for the City.

4.1.2.4 Wholesale Supplies

The City purchases a specified percentage of the BuRec diverted quantities during the months of June through September, and the BuRec requires the City to purchase a certain minimum annual quantity. Since the City purchases water from the BuRec, the BuRec is considered a wholesale supplier by DWR. Table 21 describes existing and planned wholesale supply sources.

Table 20 Water Supplies - Current and Projected (Guidebook Table 16) 2010 Urban Water Management Plan City of West Sacramento						
Water Supply Sources	Projected Supply (AFY)					
	2010	2015	2020	2025	2030	2035
U.S. Bureau of Reclamation and Appropriative Right ⁽¹⁾	23,600	23,600	23,600	23,600	23,600	23,600
North Delta Water Agency ⁽²⁾	0	5,000	5,000	5,000	5,000	5,000
Supplier-Produced Groundwater ⁽³⁾	0	0	0	0	0	0
Supplier-Produced Surface Water ⁽⁴⁾	0	0	0	0	0	0
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	23,600	28,600	28,600	28,600	28,600	28,600
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <ol style="list-style-type: none"> 1. No charges to the City for this water supply. 2. Estimated usage shown. There is no limit on the amount of water the City uses in the NDWA agreement. 3. The City does not utilize groundwater for uses other than emergency situations. The City may reevaluate groundwater use and supply availability if the need presents itself in the future. 4. Supplier surface water produced consists of the U.S. Bureau of Reclamation, Appropriative Right, and North Delta Water Agency since it is all treated through the Bryte Bend Water Treatment Plant. 						

Table 21 Wholesale Supplies – Existing and Planned Sources of Water (Guidebook Table 17) 2010 Urban Water Management Plan City of West Sacramento							
Wholesaler	Contracted Volume⁽¹⁾ AFY	2010	2015	2020	2025	2030	2035
U.S. Bureau of Reclamation	23,600	23,600	23,600	23,600	23,600	23,600	23,600
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <ol style="list-style-type: none"> 1. 23,600 AFY is the combined water supply available through the City's appropriate right and BuRec contract. The City does pay for the Appropriative Right portion of the supply. 							

4.2 GROUNDWATER

As indicated, the BBWTP supplies the City with treated surface water from the Sacramento River. Though groundwater had been used as a water supply source for the City in the

past, groundwater production for regular delivery was discontinued in 1995. As such, many of the groundwater wells in the City have been deactivated, abandoned, or are only considered for use during emergencies. For the purposes of this UWMP planning horizon, it will be assumed that the City does not intend to utilize groundwater as a regular source of supply and has not recently utilized groundwater as a supply source (Table 22 and Table 23).

In the case of unforeseen circumstances that required additional source of water supply, the City may have the opportunity to reevaluate use of groundwater to meet anticipated demands. If the City decides to reinstate groundwater as a deliverable supply source, the City may reevaluate available supply volumes, water rights issues associated with regional groundwater, and reliability of groundwater supplies in its 2015 UWMP.

The emergency wells are located within the southern portion of the Sacramento Valley Groundwater Basin that stretches from Tehama County in the north to Solano and Sacramento Counties in the south. Depth to groundwater ranges from 2 to 420 feet basin-wide, with levels in the City between 3 and 13 feet below ground surface. In the past, groundwater in the City has been of poor quality and has required treatment for iron, manganese, and other constituents prior to domestic or industrial consumption.

Table 22 Historic Groundwater Pumping (Guidebook Table 18) 2010 Urban Water Management Plan City of West Sacramento						
Basin Name	Metered or Unmetered	Historic Pumping Rates (AFY)				
		2006	2007	2008	2009	2010
None	n/a	0	0	0	0	0
Total Groundwater Pumped		0	0	0	0	0
Groundwater as Percent of Total Water Supply		0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.						

Table 23 Projected Groundwater Pumping (Guidebook Table 19) 2010 Urban Water Management Plan City of West Sacramento					
Basin Name	Projected Pumping Rates (AFY)				
	2015	2020	2025	2030	2035
None	0	0	0	0	0
Total Groundwater Pumped	0	0	0	0	0
Groundwater as Percent of Total Water Supply	0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.					

4.3 TRANSFER OPPORTUNITIES

The UWMPA requires the UWMP to address the opportunities for development of short or long-term transfer or exchange opportunities; see excerpt below.

10631 (d. Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

At the present time, the City has a short-term agreement with the Dunnigan Water District for the transfer of untreated surface water to the District. Under the agreement, the City will sell at least 1,000 AFY of water to the Dunnigan Water District (Table 24). The agreement begins in 2011 and continues for four years. In addition, the agreement utilizes the NEPA compliance document prepared by the BuRec and was completed after a full CQEA review. In February of each year, the City notifies the Dunnigan Water District of the amount of additional quantities of transfer water available for purchase. The Dunnigan Water District then notifies the City in April of the amount of transfer water it elects to purchase. The City has guaranteed the availability of transfer water unless the City's CVP allocation is less than 2,500 AF in any given year that the agreement is in effect, in which situation the City guarantees delivery to the Dunnigan Water District of all CVP allocation water in excess of 1,500 AF. The water is transferred to the Dunnigan Water District at Shasta Reservoir. A copy of the agreement between the City and the Dunnigan Water District is included in Appendix C.

Table 24 Transfer and Exchange Opportunities (Guidebook Table 20) 2010 Urban Water Management Plan City of West Sacramento			
Transfer Agency	Transfer or Exchange	Short Term or Long Term	Proposed Volume (AFY)
Dunnigan Water District	Transfer	Short-term ⁽¹⁾	1,000
Total			1,000
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <p>1. The City's transfer agreement with Dunnigan Water District begins 2011 and continues for four years.</p>			

The City has previously entered into other water transfer and exchange agreements. These agreements have been executed in order to work with regional CVP contractors to maximize beneficial use under the CVPIA, as well as maximize water supply flexibility and reliability under the City's rights and contracts. The CVPIA's beneficial use provisions encourage regional cooperation.

If the City meets unanticipated demands that exceed available supplies, or in extreme supply shortage conditions, the City may consider investigation of groundwater or alternative surface water sources to create flexibility in its overall water supply portfolio. In the meantime, the City is active in developing water transfer opportunities and will continue to work with regional partners and stakeholders to facilitate short- and long-term water transfer opportunities.

4.4 DESALINATED WATER OPPORTUNITIES

The UWMPA requires that the UWMP address the opportunities for development of desalinated water, including ocean water, brackish water, and groundwater; see excerpt below.

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long term supply.

At the present time, the City does not foresee any opportunities for the use of desalinated water, including ocean water, brackish ocean water, and brackish groundwater, as a long-term supply since the City is not located near the coast or a brackish groundwater source.

4.5 RECYCLED WATER OPPORTUNITIES

The UWMPA requires that the UWMP address the opportunities for development of recycled water, including the description of existing recycled water applications, quantities

of wastewater currently being treated to recycled water standards, limitations on the use of available recycled water, an estimate of projected recycled water use, the feasibility of said projected uses, and practices to encourage the use of recycled water; see excerpt below.

10633. Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

The City has not developed a recycled water plan at this time. It is anticipated, however, that water recycling planning discussions will take place in the future between the City and the Sacramento Regional County Sanitation District (SRCSD). The SRCSD conveys and treats the City's wastewater outside of the City's service area.

4.5.1 Wastewater Collection, Treatment Systems, and Disposal

In 2007, the City's South River Road wastewater treatment plant (WWTP) was taken offline and all wastewater flows were diverted outside of the City's service area through the newly constructed Lower Northwest Interceptor (LNWI), a major pipeline with pumping facilities constructed by SRCSD. The City collection system connects to the LNWI pipeline at a transfer facility next to the Parlin Ranch subdivision in Southport, south of Linden Road and adjacent to the Clarksburg Line Trail. Sewer flows are then conveyed by a gravity line to a pump station just south of the City limits where they are then pumped under the Sacramento River in a force main to the main treatment plant of SRCSD just north of Elk Grove. The City continues to operate and maintain its existing wastewater collection system. The 2005 data shown in Table 25 is for the South River Road WWTP that was taken offline in 2007. Data is not provided for 2010 through 2035 as the wastewater is treated and disposed of outside of the City's service area by SRCSD. Guidebook Table 22 is not included in this UWMP because all of the City's non-recycled wastewater is disposed of outside of the City's service area.

Table 25 Recycled Water – Wastewater Collection and Treatment (Guidebook Table 21) 2010 Urban Water Management Plan City of West Sacramento							
Type of Wastewater	2005	2010	2015	2020	2025	2030	2035
Wastewater Collected and Treated in Service Area (MG) ⁽¹⁾	2,017	0	0	0	0	0	0
Volume that meets recycled water standard	0	0	0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR. 1. 2005 data for the South River Road WWTP that was taken offline in 2007. After 2007 all wastewater is treated and disposed of outside of the City service area by Sacramento Regional County Sanitation District.							

4.5.2 Current and Projected Recycled Water Use

At the present time, no discussions have taken place between the City and SRCSD regarding the future availability and use of recycled water. Therefore, no plans currently exist to equip the City with recycled water infrastructure. As a result, current projected use of recycled water within the City’s service area at the end of 2015, 2020, 2025, 2030, and 2035 is zero; a recycled water source does not exist within the City service area and is not planned at this time. Although no formal recycled water timeline has been discussed between the City and SRCSD, the City does anticipate this discussion with SRCSD in the future. Coordination with stakeholders and regional partners will allow the City to begin discussions and planning actions to introduce recycled water as a water supply option. With the introduction of recycled SRCSD water to the nearby Elk Grove/Laguna area, as well as increased demands for water within the City, recycled water will be an alternative supply that will be considered in the City’s future planning. Tables 26 and 27 indicate that there are no specific historical or projected uses for recycled water by the City. As recycled water planning efforts continue, the City may revise these estimates as appropriate.

Table 26 2010 Recycled Water Use Compared to 2005 UWMP Use Projections (Guidebook Table 24) 2010 Urban Water Management Plan City of West Sacramento		
User Type	Volume (AFY)	
	2010 Actual	2005 Projection for 2010
Agricultural Irrigation	0	0
Landscape Irrigation	0	0
Commercial Irrigation	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
Notes: “Guidebook Table X” refers to a specific table in the “Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan” by DWR		

Table 27 Recycled Water – Potential Future Use (Guidebook Table 23) 2010 Urban Water Management Plan City of West Sacramento							
User Type	Description	Feasible?	Volume (AFY)				
			2015	2020	2025	2030	2035
Agricultural Irrigation	N/A	N/A	0	0	0	0	0
Landscape Irrigation	N/A	N/A	0	0	0	0	0
Commercial Irrigation	N/A	N/A	0	0	0	0	0
Golf Course Irrigation	N/A	N/A	0	0	0	0	0
Wildlife Habitat	N/A	N/A	0	0	0	0	0
Wetlands	N/A	N/A	0	0	0	0	0
Industrial Reuse	N/A	N/A	0	0	0	0	0
Groundwater Recharge	N/A	N/A	0	0	0	0	0
Seawater Barrier	N/A	N/A	0	0	0	0	0
Geothermal Energy	N/A	N/A	0	0	0	0	0
Indirect Potable Reuse	N/A	N/A	0	0	0	0	0
Total			0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR							

4.5.3 Potential Uses of Recycled Water

No infrastructure exists at this time to support recycled water use within the City. If future recycled water planning discussions with SRCSD prove fruitful, however, potential uses of recycled water within the City could include:

- Urban (park and streetscape) landscape irrigation,
- Residential irrigation,
- School landscape irrigation, and,
- Dual-plumbed business/commercial developments.

The above potential uses are typical urban uses of recycled water that do not require potable water, but do require treatment to meet certain recycled water standards outlined in the California Code of Regulations Title 22. As the City begins recycled water planning discussions, decisions will be made about possible upgrade options to the City's WWTP, and to what level of Title 22 treatment the City may require. Depending on anticipated use, a variety of treatment options exist that will provide flexibility to the City's potential future investment in recycled water treatment, distribution, and usage.

At the present time, the City has not made any commitment to pursue any of the above recycled water uses. Currently, recycled water use is not economically feasible in this area, since new infrastructure would be required. The anticipated financial burden of recycled water implementation would make recycled water costs prohibitive when compared to other water supplies available.

4.5.4 Encouraging Recycled Water Use

As recycled water planning discussions begin with SRCSD, recycled water projects may be identified and pursued by the City, provided that those projects are feasible and cost-effective, and that they will provide water supply benefits both to the City and to the greater SRCSD service area. If these conditions can be met, methods to encourage recycled water use can be developed to maximize project benefits. However, the City currently has no plans of encouraging recycled water use (Table 28).

Table 28 Methods to Encourage Recycled Water Use (Guidebook Table 25) 2010 Urban Water Management Plan City of West Sacramento						
Actions	Projected Volume (AFY)					
	2010	2015	2020	2025	2030	2035
Financial Incentives	0	0	0	0	0	0
Other	0	0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.						

4.5.5 Recycled Water Use Optimization Plan

At the present time, no recycled water use optimization plan has been developed due to the lack of recycled water infrastructure within the City's service area and that all wastewater is treated outside of the service area by SRCSD.

4.6 FUTURE WATER PROJECTS

The UWMPA requires that suppliers describe water supply projects and programs may be undertaken to meet the projected water demands, see excerpt below.

10631 (h). (Describe) 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.

The City does not currently have planned future water supply projects (Table 29). The City's current supply sources are considered adequate for providing existing and projected water demands.

Table 29 Future Water Supply Projects (Guidebook Table 26) 2010 Urban Water Management Plan City of West Sacramento								
Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Projected Annual Supply (AFY)				
				Normal Year	Single Dry Year	Multiple Dry Year First Year	Multiple Dry Year Second Year	Multiple Dry Year Third Year
None	2010	2035	None	N/A	N/A	N/A	N/A	N/A
Total				N/A	N/A	N/A	N/A	N/A

Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.

WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

This chapter describes the reliability of the City's water supplies, including a discussion of the City's water shortage contingency plan, as well as potential supply disruptions associated with water quality issues and drought.

5.1 WATER SUPPLY RELIABILITY

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) address the reliability of the agency's water supplies. This includes supplies that are vulnerable to seasonal or climatic variations. In addition, an analysis must be included to address supply availability in a single-dry year and in multiple-dry years; see excerpt below.

10631 (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."

10631 (c) (2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

There are two aspects of supply reliability that can be considered. The first relates to immediate service needs and is primarily a function of the availability and adequacy of the supply facilities. The second aspect is climate-related, and involves the availability of water during mild or severe drought periods.

Because a water supply for the portion of the City of West Sacramento (City) lying within the North Delta Water Agency (NDWA) boundary is assured in all years, diversions from the Sacramento River in accordance with the City's appropriative right and U.S. Bureau of Reclamation (BuRec) contract can be used, as necessary, to provide water to serve the area of the City lying outside the NDWA boundary. This section examines the reliability of the water supply available to that portion of the City, under both normal and dry conditions.

Water supply from the City's appropriative right is susceptible to several factors, including Standard Term 91 supply reductions, drought conditions, stringent downstream water quality objectives in the Delta, and diversions by more senior appropriative rights holders. Any combination of these factors may result in reductions in supply during certain periods of the year. This supply is legally unavailable during the high demand months of July and August and, as a result of Standard Term 91 limits, is typically reduced by varying amounts

during the month of June. For the remainder of the year, this supply can be considered consistent.

Water supply from the City's BuRec contract is susceptible primarily to drought conditions, when diversions from the Sacramento River may be reduced by BuRec under its Sacramento River CVP M&I shortage policy. Historical reductions have been minimal, however, and with the exception of drought years in the early 1990s, this supply can be considered more or less consistent on a year-round basis.

For the majority of the City, NDWA provides a supply that is essentially drought-proof. Inconsistencies in this supply could result from several factors, including drastic reductions in water quality in the Sacramento River and/or catastrophic interruptions to the source or to the City's water treatment facilities. The City does have a Disaster/Emergency Response Plan, which addresses many of the possible scenarios, which could interrupt supply from the Sacramento River. As a result of the relative consistency of the City's water supplies, there are no plans at this time to replace any of the City's sources with alternative sources.

Table 30 contains a summary of factors affecting water supply reliability and that may pose an opportunity for inconsistency in supply. Environmental factors represent supply restrictions that may be imposed due to downstream Delta water quality and quantity objectives. Water quality factors represent potential contamination of the river (described below in Section 5.2). Because the City's current supply is from the Sacramento River, potential contamination may limit supply that is adequate for consumption. While some water quality factors may be mitigated through treatment, more severe impacts have the potential to impact supply that is available for immediate distribution. Climatic factors represent potential restrictions due to drought conditions.

Table 30 Factors Resulting in Inconsistency of Supply (Guidebook Table 29) 2010 Urban Water Management Plan City of West Sacramento							
Water Supply Sources⁽¹⁾	Specific Source Name	Limitation Quantification	Legal	Environmental	Water Quality	Climatic	Additional Information
BuRec	Sacramento River	-	Yes	-	Yes	Yes	-
Appro. Right	Sacramento River	Yes ⁽²⁾	-	Yes	Yes	Yes	-
NDWA	Sacramento River	-	-	-	Yes	-	-

Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.
 BuRec = U.S. Bureau of Reclamation, Appro. = Appropriative, NDWA = North Delta Water Agency
 1. From Guidebook Table 16 (Table 20 in this report).
 2. Limited to 62 cubic feet per second January to June and in September. No diversion during July and August.

5.2 WATER QUALITY

The UWMPA requires that the UWMP include a discussion of water quality impacts on the reliability of an agency's water supplies; see excerpt below.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631 and the manner in which water quality affects management strategies and supply reliability.

The Sacramento River is a plentiful raw water source for municipal use. However, upstream water management and use can affect the quality of water in the Sacramento River. Regulation of stream flow, which reduces high water flows and increases summer and fall flows, substantially lessens water quality variations and enhances its suitability for municipal use. Flow is regulated by Federal and State flood control and storage facilities.

Extensively-irrigated agriculture upstream from the City tends to degrade Sacramento River water quality. During the spring and fall, irrigation return flows are discharged to drainage canals that flow directly into the river; during the winter, local runoff also flows over agricultural lands, increasing the turbidity in the water and introduces herbicides and pesticides into the river. Intensive agriculture in the Sacramento Valley, especially pesticide-dependent rice farming, increases the concentration of compounds such as Molinate and Thiobencarb.

The California Department of Food and Agriculture, in cooperation with the State Water Resources Control Board (SWRCB), has implemented a tailwater management program for

Sacramento Valley rice growers to reduce discharges of Molinate and Thiobencarb into the Sacramento River. The City, in partnership with the City of Sacramento, the County of Sacramento, and the East Bay Municipal Utility District (EBMUD) participates in the Rice Pesticide Workgroup, which monitors and reports rice pesticide discharge to the Regional Water Quality Control Board (RWQCB). The City also participates in many other programs to keep the river clean, including the Keep the Waters Clean Campaign in partnership with the City of Sacramento, the County of Sacramento, and EBMUD; the Sanitary Survey of the Sacramento River Watershed in partnership with the City of Sacramento, City of Roseville, and EBMUD; the Drinking Water Source Assessment Program (DWSAP) which works to identify sources of contamination and respond to possible contamination; and the Regional Water Authority Water Efficiency Program which works to help agencies better meet regulations in water conservation programs.

The City monitors water quality in the Sacramento River on a daily basis. Samples taken at the City water intake indicate that river water in the vicinity of the East Yolo water intake has very low concentrations of total dissolved solids and has dissolved concentrations of heavy metals below laboratory analytical detection limits. The Sacramento River has historically been highly turbid and naturally carries high sediment loads. During peak regional storm events, the river's total sediment load often increases by several times its average levels. Turbidity and increased settlement load can result in longer particulate settling times at the water treatment plant when purifying drinking water. In addition, the increased turbidity could result in reduced oxygen levels in the river, potentially causing adverse effects on aquatic species.

Numerous entities hold National Pollutant Discharge Elimination System (NPDES) permits for discharges into the Sacramento River above the City. Some of these are wastewater treatment plants and cooling water discharges. Most of the permits are held by industrial dischargers such as food processing plants. Permitted discharge could contain a variety of contaminants including household pesticides, sediments, natural organic matter, heavy metals, oil, and grease.

Non-point source dischargers to the Sacramento River above the City include agricultural drains and urban runoff outlets. Other non-point sources generally do not require NPDES permits. Contaminants that could affect water quality include agricultural runoff, household pesticides, sediments, natural organic matter, heavy metals, oil, and grease.

In general, water quality in the Sacramento River has a limited effect on the City's ability to provide its service area with a reliable source of high quality drinking water (Table 31). The Bryte Bend Water Treatment Plant (BBWTP) is a robust facility with high rate clarification processes (Actiflo®) as well as granular activated carbon filters. As a result, the City is capable of effectively treating very large volumes of water for a wide range of water quality parameters.

Due to the nature of the potential water quality impacts described above, no future unaddressed impacts have been identified and the potential quantitative impacts cannot be established.

Table 31 Water Quality - Current and Projected Water Supply Impacts (Guidebook Table 30) 2010 Urban Water Management Plan City of West Sacramento							
Water Source	Description of Condition	Potential Supply Impacts (AFY)					
		2010	2015	2020	2025	2030	2035
Supplier-Produced Groundwater	None	0	0	0	0	0	0
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.							

5.3 WATER SHORTAGE CONTINGENCY PLANNING

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that addresses specified issues; see excerpt below.

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

The California Water Code requires that the City coordinate, to the extent practicable, preparation of its urban water shortage contingency plan with other urban water suppliers and public agencies in the area. The City does not have any interconnections between its potable water system and potable water systems operated by other water suppliers. However, as part of preparing this plan, the City has reviewed the water shortage contingency plan adopted by the City of Sacramento, which also diverts water from the Sacramento River.

The UWMPA requires that the City develop stages of action to be undertaken during a catastrophic interruption of water supply in the Sacramento River or the City's water treatment facilities that could include flooding, major fire emergencies, regional power outage, an earthquake, water contamination, and acts of sabotage. In response to these possibilities, the City has developed an Emergency/Disaster Response Plan, which includes appropriate personnel listings, resource inventories, locations for emergency operations centers, response procedures, and the steps necessary to resume normal operations. A copy of the plan is included in Appendix D.

5.3.1 Stages of Action in Response to Water Supply Shortages

In addition to actions, the City is required to develop mandatory prohibition against specific water use during shortages and consumption reduction methods in the most restrictive stages including up to a 50 percent reduction in water supply. The City must also identify specific water supply conditions, which are applicable to each stage. The stages of action in response to water supply shortages, including up to a 50 percent reduction in water supply are summarized in Table 32. Each stage is described below.

Table 32 Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages (Guidebook Table 35) 2010 Urban Water Management Plan City of West Sacramento		
Stage No.	Water Supply Conditions	% Shortage
1	Probability that the City will not be able to meet all water demands.	15
2	The City may not be able to meet all water demands with the voluntary Stage 1 rationing measures.	30
3	The City may not be able to meet all water demands with the mandatory Stage 2 rationing measures.	40
4	Major failure of supply. The City may not be able to meet all water demands with the mandatory Stage 3 rationing measures.	50
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan" by DWR.		

5.3.1.1 Stage 1 Water Shortage (Goal of 15 Percent Reduction)

Application: There is a probability that the City will not be able to meet all the water requirements of its customers.

Type of Program: Voluntary.

Triggering Mechanism: A cutback in available water supply of up to 15 percent.

Consumption Limits: All customers would be requested to reduce consumption by 15 percent.

City Actions: Continue existing conservation programs, and:

1. Initiate public information campaign. Explain water shortage situation to the public and governmental bodies. Explain other stages and forecast future actions. Request voluntary water conservation.
2. Coordinate media outreach program. Issue news releases to the media. Begin advertising campaign to remind consumers of the need to save water.

3. Prepare and distribute educational brochures, bill inserts, etc. Provide technical information to customers on ways to save water.

Requested Consumer Actions: Customers would be requested to implement voluntary Stage 1 measures and adhere to the “No Waste” ordinance. Stage 1 measures include not using potable water for washing sidewalks, driveways, streets, parking lots, buildings, or to cool building roofs.

Follow-up for Noncompliance: For the first and subsequent violations of the water conservation measures in force, customers will receive the following sequence of enforcement actions (over two-week period each):

1. A conservation letter or visit from a City conservation specialist.
2. A second letter offering City assistance.

5.3.1.2 Stage 2 Water Shortage (Goal 30 Percent Reduction)

Application: The City is not able to meet all customer water requirements with Stage 1 prohibitions and consumption reduction methods.

Type of Program: Mandatory.

Triggering Mechanism: A cutback in available water supply of 15 to 30 percent.

Consumption Limits: All customers would be required to reduce consumption by 30 percent.

City Actions: Continue existing conservation programs, and:

1. The City Manager would declare a Water Shortage Emergency.
2. Mandate compliance with Stage 2 measures.
3. Continue rigorous public information campaign. Explain water shortage conditions. Distribute technical information.

Requested Consumer Actions: Customers would be required to comply with mandatory Stage 2 prohibitions.

Enforcement/Charges for Excessive Water Use: For the first and subsequent violations of the water conservation measures in force, customers will receive the following sequence of enforcement actions (over two-week period each):

1. For the first violation, the person that committed the violation shall be issued a written notice stating the type of violation.
2. For the second violation, the person that committed the violation shall be issued a written notice.

3. For the third violation, the person that committed the violation and the property owner shall be issued a written notice. For the third violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the month of the violation, and then said water rates would be returned to their regular schedule.
4. For the fourth violation, the person that committed the violation and the property owner shall be issued a written notice. For the fourth violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the duration of the water shortage and then said water rates would return to their regular schedule.

5.3.1.3 Stage 3 Water Shortage (Goal of 40 Percent Reduction)

Application: The City is not able to meet all customer water requirements with voluntary Stage 2 measures.

Type of Program: Mandatory.

Triggering Mechanism: A cutback in available water supply of 30 to 40 percent.

Consumption Limits: All customers would be required to reduce consumption by 40 percent.

City Actions: Continue existing conservation programs, and:

1. Mandate adherence to all Stage 3 measures.
2. Continue rigorous public information campaign.

Requested Consumer Actions: Customers would be required to comply with mandatory Stage 3 prohibitions.

Enforcement/Charges for Excessive Water Use: For the first and subsequent violations of the water conservation measures in force, customers will receive the following sequence of enforcement actions (over two-week period each):

1. For the first violation, the person that committed the violation shall be issued a written notice stating the type of violation.
2. For the second violation, the person that committed the violation shall be issued a written notice.
3. For the third violation, the person that committed the violation and the property owner shall be issued a written notice. For the third violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the month of the violation, and then said water rates would be returned to their regular schedule.

4. For the fourth violation, the person that committed the violation and the property owner shall be issued a written notice. For the fourth violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the duration of the water shortage and then said water rates would return to their regular schedule.
5. For the fifth violation, the person that committed the violation and the property owner shall be issued a shut-off letter warning of termination of service and a possible reconnect fee.
6. For the sixth violation, service shall be shutoff, and the property owner shall be subject to a charge for reconnection.

5.3.1.4 Stage 4 Water Shortage (Goal of 50 Percent Reduction)

Application: The City is experiencing a major failure of supply, storage, or distribution facility. The City is not able to meet all customer water requirements with Stage 3 measures.

Type of Program: Mandatory.

Triggering Mechanism: A cutback in available water supply of 50 percent or greater.

Consumption Limits: All customers would be required to reduce consumption by 50 percent for the duration of the water emergency.

City Actions: Continue existing conservation programs and Stage 3 City actions, and:

1. Mandate adherence to all Stage 4 measures.
2. Intensify media outreach program with regular updates on the emergency.
3. Monitor production weekly for compliance with necessary reduction.

Requested Consumer Actions: Customers would be required to comply with mandatory Stage 4 prohibitions.

Enforcement/Charges for Excessive Water Use: For the first and subsequent violations of the water conservation measures in force, customers will receive the following sequence of enforcement actions (over two-week period each):

1. For the first violation, the person that committed the violation shall be issued a written notice stating the type of violation.
2. For the second violation, the person that committed the violation shall be issued a written notice.

3. For the third violation, the person that committed the violation and the property owner shall be issued a written notice. For the third violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the month of the violation, and then said water rates would be returned to their regular schedule.
4. For the fourth violation, the person that committed the violation and the property owner shall be issued a written notice. For the fourth violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the duration of the water shortage and then said water rates would return to their regular schedule.
5. For the fifth violation, the person that committed the violation and the property owner shall be issued a shut-off letter warning of termination of service and a possible reconnect fee.
6. For the sixth violation, service shall be shutoff, and the property owner shall be subject to a charge for reconnection.

In the event of a 50 percent reduction for a single year, the City will continue with Stage 3 voluntary and mandatory rationing measures, mandate adherence to all Stage 4 measures, intensify media outreach program with regular updates on the emergency, and monitor production weekly for compliance with necessary reduction. Penalties and charges as well as possible disconnection of service will be enforced on water wasters under this condition.

Table 33 contains mandatory prohibitions and the water shortage stage when they are enacted.

Table 33 Water Shortage Contingency – Mandatory Prohibitions (Guidebook Table 36) 2010 Urban Water Management Plan City of West Sacramento	
Prohibitions	Stage When
Using potable water for washing sidewalks and driveways is prohibited	2, 3, 4
Using potable water for washing streets and parking lots is prohibited	2, 3, 4
Using potable water to wash down buildings or to cool building roofs is prohibited	2, 3, 4
Watering of lawns or landscaping between noon and 6:00 p.m.	2, 3
Outdoor watering limited to an odd/even schedule. Customers with street addresses that end in an odd number may only irrigate on Tuesdays, Thursdays, and Saturdays. Customers with street addresses that end in an even number may only irrigate on Wednesday, Fridays, and Sundays. No irrigation is permitted on Mondays.	2
Outdoor watering limited to one day per week. Customers with street addresses that end in an odd number may only irrigate on Saturdays. Customers with street addresses that end in an even number may only irrigate on Sundays. No irrigation is permitted Monday through Friday.	3
Using potable water to fill or refill swimming pools or artificial ponds or lakes is prohibited	3, 4
Using potable water in ornamental fountains or ponds is prohibited	3, 4
Outdoor watering is prohibited	4
Flushing of fire hydrants is prohibited except in case of emergency or to assure proper operation	4
New connections to the City water supply system shall not be permitted	4
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.	

5.3.1.5 Consumption Reduction Methods

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that addresses methods to reduce consumption; see except below.

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

10632 (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

10632 (f) Penalties or charges for excessive use, where applicable.

Table 34 contains consumption reduction methods by water shortage stage.

Table 34 Water Shortage Contingency – Consumption Reduction Methods (Guidebook Table 37) 2010 Urban Water Management Plan City of West Sacramento		
Consumption	Stage	Projected Reduction
Repair leaking pipes, fixtures, and sprinklers within 5 days of customer identification or receipt of notice from the City Planting of water efficient landscaping Install water saving devices on showers, faucets, and hoses Wash full loads in washing machines and dishwashers Metered commercial/industrial customers are requested to reduce consumption by 15 percent	1	15%
Metered commercial/industrial customers are requested to reduce consumption by 30 percent	2	30%
Repair leaking pipes, fixtures, and sprinklers within 72 hours of customer identification or receipt of notice from the City Planting of water efficient landscaping Install water saving devices on showers, faucets, and hoses is requested Wash full loads in washing machines and dishwashers is required	2, 3, 4	Stage 2 30% Stage 3 40% Stage 4 50%
Washing of automobiles or equipment shall be done on lawns or at an establishment which uses recycled water	3, 4	Stage 3 40% Stage 4 50%
Metered commercial/industrial customers are requested to reduce consumption by 40 percent	3	40%
Metered commercial/industrial customers are requested to reduce consumption by 50 percent	4	50%
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.		

5.3.1.6 Penalties and Charges

The penalties or charges for excessive use during water shortages are summarized in Table 35.

Table 35 Water Shortage Contingency – Penalties and Charges (Guidebook Table 38) 2010 Urban Water Management Plan City of West Sacramento	
Penalties or Charges	Stage When Penalty Takes Effect
<p>For the third violation, the person that committed the violation and the property owner shall be issued a written notice. For the third violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the month of the violation, and then said water rates would be returned to their regular schedule.</p> <p>For the fourth violation, the person that committed the violation and the property owner shall be issued a written notice. For the fourth violation, the subject property water rates shall be increased to five (5) times the normal monthly rates for the duration of the water shortage and then said water rates would return to their regular schedule.</p>	2, 3, 4
<p>For the fifth violation, the person that committed the violation and the property owner shall be issued a shut-off letter warning of termination of service and a possible reconnect fee.</p> <p>For the sixth violation, service shall be shutoff, and the property owner shall be subject to a charge for reconnection.</p>	3, 4
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p>	

5.3.2 Residential Users and Unmetered Commercial/Industrial Uses

Since many of the City’s customers pay for water use based on a flat rate, consumption limits that would apply in the most restrictive stages of water shortage cannot currently be based on measured water use. Consequently, the proposed consumption limits for residential users are based on restrictions of a specific use, namely outdoor landscape irrigation. Consumption limits applicable during each stage are summarized in Tables 36 and 37. Once the City is fully metered, compliance with consumption limits can be based on measured water use.

Table 36 Water Shortage Contingency Consumption Limits for Unmetered Users 2010 Urban Water Management Plan City of West Sacramento	
Restriction in Outdoor Irrigation Schedule	Stage When
No restriction	1
Odd/Even Day Irrigation	2
Odd/Even Day Irrigation	3
Landscape irrigation prohibited	4

Table 37 Water Shortage Contingency Consumption Limits for Metered Users 2010 Urban Water Management Plan City of West Sacramento	
Required Reductions in Consumption	Stage When
15 percent	1
30 percent	2
40 percent	3
50 percent	4

5.3.3 Mechanism for Determining Actual Reductions in Water Use

The UWMPA requires that the UWMP include a means to determine the actual water use reduction in the event of a water shortage; see excerpt below.

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

For metered accounts, reductions in water use for each user can be determined based on meter readings. For unmetered accounts and the Service Area as a whole, reductions in water use must be determined by measuring daily and monthly surface water production at the BBWTP.

5.3.4 Analysis of Revenue Impacts of Reduced Sales during Shortages

According to the UWMPA, the UWMP is required to include an urban water shortage contingency analysis that addresses the financial impacts from reduced water sales and proposed measures to overcome deficits (e.g., development of a reserve account or special

rate adjustments); see except below.

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

10632 (g) An analysis of the impacts of each of the proposed measures to overcome those revenue and expenditure impacts, such as the development of reserves and rate adjustments.

Based on an analysis of the dependability of the City's existing water supply sources (surface water) and existing water rights, contracts, and agreements, the City does not anticipate a water supply shortage that would affect City revenues and expenditures significantly. Therefore, establishment of a special reserve account or a special rate adjustment is not deemed appropriate at this time. However, in the event of a water shortage, the City shall monitor water revenues and expenses closely to assure that "water shortage" adjustments to water rates are not required. Additional costs would indeed be associated with increased monitoring during water shortage situations, namely due to an increase in the hours required to read water meters. The City anticipates that all meters within the City can be read within 5 days. If additional meter readings are required, it is estimated that the maximum effort required (to re-read the entire City) would be 40 hours for one additional meter reader. The additional costs associated with this effort, however, are not expected to significantly impact City revenues and expenditures.

5.3.5 Draft Ordinance

The California Water Code requires that the City develop mandatory provisions and a draft water shortage contingency resolution as part of the UWMP to reduce water use, including prohibitions against specific wasteful practices, such as gutter flooding. A draft "No Waste" Ordinance is included in Appendix E. The ordinance includes restrictions, which would become effective immediately and restrictions, which would only become effective during a declared "Water Shortage Emergency." The City Code includes water conservation measures (Appendix E) that are enforced during normal water years as well.

5.4 DROUGHT PLANNING

This section considers the City's water supply reliability during three water scenarios: average year, single-dry year, and multiple-dry year period. These scenarios are defined as follows:

- **Average year:** a year in the historical sequence that most closely represents median runoff levels and patterns. It is defined as the median runoff over the previous 30 years or more. This median is recalculated every 10 years.

- **Single-dry year:** generally considered to be the lowest annual runoff for a watershed since the water-year beginning in 1903. Suppliers should determine this for each watershed from which they receive supplies.
- **Multiple-dry year period:** generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903.

Since the City's only water supply in future years will come from the Sacramento River, seasonal and climatic changes may impact the availability of water. Historical curtailments in the City's supply occurred during the drought years of 1987 through 1992. These curtailments, however, had no effect on the portions of the City, which lie inside the NDWA boundary, as diversions under NDWA were not restricted (refer to Figure 1).

The specific years identified for average, single-dry, and multiple-dry water years presented in Table 38 were developed based on historical curtailments and the Department of Water Resources Sacramento Valley runoff tables (WSIHIST 1901 through 2009).

Table 38 Basis of Water Year Data (Guidebook Table 27) 2010 Urban Water Management Plan City of West Sacramento	
Water Year Type	Base Year(s)
Average Water Year	2005
Single-Dry Water Year	1992
Multiple-Dry Water Years	1990-1992
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan" by DWR.	

Table 39 contains the available water supply estimated for each of the water year types, as a percentage of the average water year. These amounts reflect the supply from the BuRec and appropriative right entitlements and do not include the amount supplied by the NDWA contract. The NDWA contract will provide adequate supply within its boundaries. Therefore, the supply quantities available under single-dry and multiple-dry year conditions are only critical for the area outside of the NDWA boundary.

At buildout, the water demands for the area outside of the NDWA boundary are estimated to be 2.9 million gallons per day (mgd) (3,248 acre-feet per year (AFY)). The water supply, even during the single-dry year, shown in Table 39 is well in excess of 3,248 AFY, assuming the area within the NDWA boundary is supplied water from the NDWA contract. Additionally, the City's backup groundwater wells can supply 2.9 mgd if needed in the event of an emergency. Table 40 shows the available supply by water source. As the data in these tables indicate, the City will always have sufficient water available from its BuRec and appropriative right entitlements to meet demands for the portion of the City outside of NDWA boundaries, even when the BuRec and appropriative right deliveries are reduced to 25 percent of the contractual entitlement.

Table 39 Supply Reliability – Historical Conditions (Guidebook Table 28) 2010 Urban Water Management Plan City of West Sacramento				
Average Water Year⁽¹⁾ AFY	Single-Dry Water Year⁽²⁾ AFY	Multiple-Dry Water Years⁽³⁾ AFY		
		Year 1	Year 2	Year 3
23,600	5,900	11,800	10,856	11,328
Percent of Average Year:	25	50	46	48
<p>Notes: “Guidebook Table X” refers to a specific table in the “Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan” by DWR.</p> <p>1. BuRec Contract and Appropriative Right supply. Does not include supply available from NDWA.</p> <p>2. 5,900 AFY represents the 1992 conditions when diversion was limited by the state due to drought conditions. Though diversions were decreased in this year, the City is protected from future limitations with its NDWA supply, which is not currently limited in volume. The City’s NDWA supplies would be activated in a dry year as described above.</p> <p>3. Multiple-dry year percentages based on DWR WSIHIST Sacramento Valley runoff during 1990-1992 as compared to the average runoff year of 2005.</p>				

Table 40 Supply Reliability – Current Water Sources (Guidebook Table 31) 2010 Urban Water Management Plan City of West Sacramento				
Water Supply Sources	Average Water Supply Year AFY	Multiple-Dry Water Years		
		Year 2011	Year 2012	Year 2013
BuRec and Appropriative Right	23,600	11,800	10,856	11,328
North Delta Water Agency	Not limited within NDWA boundary			
Percent of Average Year:		50	46	48
<p>Notes: “Guidebook Table X” refers to a specific table in the “Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan” by DWR.</p>				

5.4.1 Minimum Supply Available for the Next Three Years

The California Water Code requires that the City estimate the minimum water supply available at the end of the 12, 24, and 36 months, assuming the driest three-year historic supply shortage. Historical curtailments to the City’s supplies have resulted in a potential three-year minimum supply volume of 5,900 AFY, based on a 75 percent reduction in the City’s BuRec contract and appropriative right (occurred in 1992). The resulting supply available to the area of the City lying outside NDWA boundaries would therefore be 5,900 AFY, which is in excess of the projected demands (3,248 AFY at buildout) for that area. However, there is no minimum supply for the portion of the City lying within the NDWA boundary due to the nature of the agreement between NDWA and DWR. Therefore, it is unlikely that the City would be faced with a dry-year situation in which its demands could not be met with available supplies.

5.4.2 Supplies and Demands for Average Water Year

During an average water year, a combined delivery of 23,600 acre-feet (AF) of water is available to the City under its appropriative right and BuRec entitlements. Supply from the NDWA agreement is not limited for the portion of the City within the NDWA boundary. Future citywide demands, assuming the City can meet the water use targets, will not exceed the supplies from the BuRec, appropriative rights, and NDWA (Table 41).

Table 41 Supply and Demand Comparison- Average Year (Guidebook Table 32) 2010 Urban Water Management Plan City of West Sacramento					
	2015	2020	2025	2030	2035
Supply Totals ⁽¹⁾	28,600	28,600	28,600	28,600	28,600
Demand Totals ⁽²⁾	14,471	15,557	17,316	19,273	22,909
Difference	14,129	13,043	11,284	9,327	5,691
Difference as % of Supply	49	46	40	33	20
Difference as % of Demand	98	84	65	48	25
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.					
1. The amount of water included from the NDWA agreement is only an estimate. There is no limit on the amount the City receives from the NDWA agreement. Refer to Table 20 in this report.					
2. City wide demand totals include conservation based on water use targets. Refer to Table 15 in this report.					

NDWA will provide an adequate supply for municipal, industrial, and agricultural demands within its boundaries. Focus is therefore placed on the supply and demand outside the NDWA boundary in single-dry and multiple-dry years as described below.

5.4.3 Supplies and Demands for a Single-Dry Water Year

As mentioned above, focus during single-dry years is placed upon meeting demands outside the NDWA boundary. During a single-dry year, the BuRec and appropriative right entitlements can be reduced by 75 percent. Therefore, the water supply during the single-dry year from these entitlements would be 5,900 AFY, which is well in excess of the estimated buildout demand of the portion of the City outside of the NDWA boundary (3,248 AFY). It is assumed that under these conditions the area within the NDWA boundary is supplied water from the NDWA contract. Table 42 provides an estimate of the projected single-dry year supply and demand totals. Demand reductions due to water shortage stage rationing measures are not included in the single-dry year demand estimates.

Table 42 Supply and Demand Comparison - Single-Dry Year (Guidebook Table 33) 2010 Urban Water Management Plan City of West Sacramento					
	2015	2020	2025	2030	2035
Supply Totals ⁽¹⁾	5,900	5,900	5,900	5,900	5,900
Demand Totals ⁽²⁾	3,021	3,248	3,248	3,248	3,248
Difference	2,879	2,652	2,652	2,652	2,652
Difference as % of Supply	49	45	45	45	45
Difference as % of Demand	95	82	82	82	82
<p>Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.</p> <p>1. BuRec Contract and Appropriative Right supply. Does not include supply available from NDWA, which has no current limit on deliveries. Therefore, the supply totals listed are for demonstration purposes only. The City will likely have access to supply volumes to meet all projected demands.</p> <p>2. Demands for portion of City outside of NDWA boundary.</p>					

5.4.4 Supply and Demand for Multiple-Dry Water Year Periods

The multiple-dry year supplies were developed based on the DWR Sacramento Valley runoff tables (WSIHIST 1901 through 2009) for 1990 to 1992 (refer to Table 39). These supplies are well in excess of the estimated buildout demand of the portion of the City outside of the NDWA boundary (3,248 AFY). It is assumed that under these conditions the area within the NDWA boundary is supplemented by water from the NDWA contract.

Table 43 provides an estimate of the projected multiple-dry year supply and demand totals. Demand reductions due to water shortage stage rationing measures are not included in the multiple-dry year demand estimates. The excess difference in supply would be used for City demands within the NDWA boundary.

Table 43 Supply and Demand Comparison - Multiple-Dry Year (Guidebook Table 34) 2010 Urban Water Management Plan City of West Sacramento						
		2015	2020	2025	2030	2035
Multiple-Dry Year First Year Supply	Supply Totals	11,800	11,800	11,800	11,800	11,800
	Demand Totals	3,021	3,248	3,248	3,248	3,248
	Difference	8,779	8,552	8,552	8,552	8,552
	Difference as % of Supply	74	73	73	73	73
	Difference as % of Demand	290	263	263	263	263
Multiple-Dry Year Second Year Supply	Supply Totals	10,856	10,856	10,856	10,856	10,856
	Demand Totals	3,021	3,248	3,248	3,248	3,248
	Difference	7,835	7,608	7,608	7,608	7,608
	Difference as % of Supply	72	70	70	70	70
	Difference as % of Demand	259	234	234	234	234
Multiple-Dry Year Third Year Supply	Supply Totals	11,328	11,328	11,328	11,328	11,328
	Demand Totals	3,021	3,248	3,248	3,248	3,248
	Difference	8,307	8,080	8,080	8,080	8,080
	Difference as % of Supply	73	71	71	71	71
	Difference as % of Demand	275	249	249	249	249
Notes: "Guidebook Table X" refers to a specific table in the "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" by DWR.						

DEMAND MANAGEMENT MEASURES

This chapter presents a detailed analysis of the demand management measures (DMMs) contained in the Urban Water Management Planning Act (UWMPA), as well as the City of West Sacramento (City) existing efforts to further develop their water conservation program. The description, effectiveness, implementation schedule, costs, and methods of improvement for each of the DMMs have been included; see excerpt below.

10631 (f)(1) and (2) Describe and provide a schedule of implementation for each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.; (B) Residential plumbing retrofit.; (C) System water audits, leak detection, and repair.; (D) Metering with commodity rates for all new connections and retrofit of existing connections.; (E) Large landscape conservation programs and incentives.; (F) High-efficiency washing machine rebate programs.; (G) Public information programs.; (H) School education programs.; (I) Conservation programs for commercial, industrial, and institutional accounts.; (J) Wholesale agency programs.; (K) Conservation pricing.; (L) Water conservation coordinator.; (M) Water waste prohibitions.; and (N) Residential ultra-low-flush toilet replacement programs.

10631 (f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

10631 (f)(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

10631 (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; and (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

6.1 INTRODUCTION

The City joined the Regional Water Authority (RWA) as a member and the RWA Water Efficient Program (RWEF) as a participating member in 2007. The RWA is a joint powers authority that serves and represents the interests of 22 water-related entities in El Dorado, Placer, Sacramento, and Yolo counties. RWA was formed to serve and represent regional water supply interests and to assist its members in protecting and enhancing the reliability,

availability, affordability, and quality of water resources. The RWEF supports members with conservation requirements related to the Water Forum, California Urban Water Conservation Council (CUWCC), U.S. Bureau of Reclamation (BuRec), Assembly Bill 1420, and Senate Bill x7-7. As an agency that represents the interests of several water suppliers, the RWA has been able to obtain several grants for its members to use for water conservation programs.

The RWEF provides region-wide water efficiency activities such as school education, public outreach, and other water conservation best management practices (BMPs) utilizing widespread marketing to benefit the members. Additionally, RWEF offers other water efficiency services. These services have been incorporated with the City's current water conservation efforts to enhance their DMM programs.

Many of the RWA members are signatory to the Water Forum or the CUWCC. The CUWCC was created to increase efficient water use statewide. CUWCC's goal is to integrate urban water conservation BMPs into the planning and management of California's water resources. The City is not currently a Water Forum signatory or a CUWCC signatory. The City does not have a water conservation purveyor specific agreement and is not required to report water conservation activities to the Water Forum.

6.1.1 City Commitment to Water Conservation

The City is committed to water conservation and has implemented several policies and on-going programs that promote and encourage water conservation. In addition, the City has several drought-specific programs that can be implemented if water supplies become limited and the need for more intensive water conservation becomes necessary. Table 44 provides an overview of the City's current water conservation policies and programs as they relate to the fourteen DMMs contained in the UWMPA. Detailed descriptions of the City's policies and programs follow.

In addition to the City's building code that requires water conservation measures on all new construction and major remodels, the City adopted the Green Building Standards Code, also known as CalGreen in November 2010 that requires all new buildings to be more energy efficient and environmentally responsible. The Code has both residential and non-residential water efficiency and conservation components requiring that newly constructed buildings reduce water consumption by 20 percent. The residential portion of the code applies to newly constructed, low-rise residential structures, three stories or less. Remodels and existing homes are not required to follow the building code. The residential plumbing portion takes effect July 1, 2011. The non-residential portion of the code applies to state-owned buildings, state university and community college buildings, and privately owned buildings used for retail, office, and medical services. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use. The non-residential plumbing portion takes effect January 1, 2011.

Table 44 Demand Management Measure Overview 2010 Urban Water Management Plan City of West Sacramento			
DMM	DMM Description	City Conservation Program	Compliance with UWMPA
1	Water Survey Programs for Single-Family and Multi-Family Residential Customers	None at this time. Conservation information on City website and in literature distributed to customers.	Partially Implemented
2	Residential Plumbing Retrofit	Low-flow fixtures required for all new construction and major remodels; City adopted CalGreen requirements.	Partially Implemented
3	System Water Audits, Leak Detection and Repair	Completed Raley Field Audit; Capital Improvement Programs; RWA member.	Yes
4	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections	Meter Implementation Plan.	Yes
5	Large Landscape Conservation Programs and Incentives	Water Efficient Landscape Ordinance; centralized SCADA system for all landscaping in Southport Area; irrigation and sprinkling ordinance.	Yes
6	High Efficiency - Washing Machine Rebate Program	Rebates available through energy company.	Partially Implemented
7	Public Information Programs	Publish quarterly newsletter, brochures, and other literature; RWA member.	Yes
8	School Education Programs	May is "Water Education Month" with educators visiting classrooms; field trips offered at BBWTP; RWA member.	Yes
9	Conservation Programs for Commercial, Industrial, and Institutional Accounts	Low-flow fixtures and water efficient landscaping required for all new development; RWEPP services; CalGreen requirements.	Yes
10	Wholesale Agency Programs	Not applicable.	NA
11	Conservation Pricing	Meter Implementation Plan.	Partially Implemented
12	Water Conservation Coordinator	None at this time.	Partially Implemented
13	Water Waste Prohibition	Restrictions for water waste/faulty fixtures, refrigerator/AC water use, evaporative coolers, swimming/wading pools, irrigation/construction; conservation devices are required; charges for wasted water; emergency conservation measures for drought conditions.	Yes
14	Residential Ultra-Low Flush Toilet Replacement Program	Toilet Rebate Program with RWA; 58 rebates issued to City customers.	Yes

6.2 DMM 1: WATER SURVEY PROGRAMS FOR SINGLE-FAMILY AND MULTI-FAMILY RESIDENTIAL CUSTOMERS

This program consists of offering water audits to single-family and multi-family residential customers. Audits include reviewing water usage history with the customer, identifying leaks inside and outside the home, and recommending improvements. Residents are generally provided with recommendations for improvements, plumbing retrofit kits, and water conservation literature.

The City has maintained an active water-metering program for the last several years. Water meters will be installed on all customer connections by January 2019. One important component of the metering system is that it allows usage information to be reviewed by the customers. This information allows individual customers to track water usage and potentially try to conserve water. Water conservation information is provided to every customer who makes a call related to his or her water usage. City employees will visit any home to assess water usage, determine if there are leaks, and to provide educational information. Irrigation methods, timing clocks, and other methods to conserve water outdoors are reviewed with customers. Customers are instructed on methods to determine if a toilet is leaking water.

The City website provides information on water conservation tips and a link to the RWEF website for more information on water conservation. Additionally, the City publishes City Lights, which goes out quarterly to customers and contains water conservation tips. As the City customers review metered billing in the following years, it is likely this service will be requested by more customers. The City has received requests for water surveys.

Methods to Evaluate Effectiveness:

The best way to evaluate the effectiveness of implemented water surveys is periodic review of water use for customers that have received surveys.

Conservation Savings:

Because it is up to the individual customer to implement survey recommendations, savings are difficult to quantify at this time.

Implementation Schedule:

Water Survey Programs: on-going, implemented by customer interest. It is assumed more requests for surveys will occur in the future when the City is fully metered in January 2019.

Methods to Improve Effectiveness:

Advertising water surveys in billing inserts and/or working with RWA to receive funding would maximize the effectiveness of this DMM.

6.3 DMM 2: RESIDENTIAL PLUMBING RETROFIT

In the past, the City had a program to distribute water conservation kits throughout the City. The kits have been distributed at special City events, council meetings, and community meetings, in addition to being available at the public works office. Water Conservation Kits, however, are no longer available. As of July 2002, the City had distributed over 700 kits that included the following items: toilet tank bank, toilet tank fill cycle diverter, low-flow showerhead, leak detection tablets, and universal home faucet aerator.

In addition to CalGreen requirements for new construction the City adopted on November 15, 2010, the City specifically requires that all major remodels have low-flow fixtures. By including major remodels in the City specific requirements and providing kits upon request, the City has partially implemented this DMM. Additionally, as the City becomes metered with commodity rates, residents of older homes that did not utilize the water conservation kits distributed may install low-flow fixtures voluntarily.

Methods to Evaluate Effectiveness:

The effectiveness of this DMM is based upon the percentage of customers that install low-flow fixtures.

Conservation Savings:

Because it is up to the individual customer to implement retrofit of low-flow fixtures, savings are difficult to quantify. The CUWCC estimates that a low-flow showerhead retrofit will save approximately 2.9 gallons per capita per day (gpcd) on post-1980 constructed homes and 7.2 gpcd on pre-1980 constructed homes. The average savings for a toilet retrofit is 1.3 gpcd on pre-1980 constructed homes only.

Implementation Schedule:

Water Conservation Kits: No longer implemented.

CalGreen Requirements: Ongoing.

Major Remodel Requirement for Low-Flow Fixtures: Ongoing.

Retrofit of Older Homes: To be determined after metering with commodity rates is citywide.

Methods to Improve Effectiveness:

If the City decides to resume implementation of water conservation kits after citywide metering with commodity rates is complete, distribution should be targeted towards areas with older homes. This targeting would maximize the benefit from these kits and this DMM.

6.4 DMM 3: SYSTEM WATER AUDITS, LEAK DETECTION, AND REPAIR

The City has a Water Pipeline Replacement Program to replace older water pipelines within the City, which are leaking, undersized, or are of inferior materials. The City's 2005 Water Master Plan Update indicated that the water main replacement program was driven by the City's aggressive road rehabilitation program. By combining the two programs, the City could avoid trenching in newly paved streets. From 1999 to 2006 60,000 linear feet (LF) of piping was replaced and between 2007 and 2010 an additional 20,425 LF of piping was replaced. The annual budget for the Water Main Replacement Program is \$385,000.

The RWA and the City completed a water audit of Raley Field on February 19, 2009, as part of RWAs on-going water efficiency program designed to assist local water purveyors. The onsite audit was conducted by an independent consulting firm. A report with audit results and recommendations for reducing water use was provided to Raley Field on March 30, 2009. Implementations of the recommendations provided to Raley Field are estimated to reduce the facility's annual water use by 30 percent.

Methods to Evaluate Effectiveness:

The best way to evaluate the effectiveness of this program is to compare water production data at the water treatment plant with water consumption from the City's customers. Without meters in place to compare water supply and demand data, it is very difficult to evaluate the effectiveness of the pipeline replacement program. A Metering Implementation Plan, however, has begun. For more information on the City's Metering Implementation Plan, see DMM 4.

Conservation Savings:

Because the effectiveness cannot be determined without meters in place, savings are hard to determine at this time. Assuming a minimum of two percent reduction of the annual water production, the savings at buildout would be approximately 460 acre-feet per year (AFY).

Implementation Schedule:

Water Pipeline Replacement Program: On-going.

System Water Audits: On-going, funding and/or assistance for future water system audits will be pursued through RWA.

Methods to Improve Effectiveness:

The City should develop a regular leak detection program to focus work areas for the future. In addition, as a participant in RWA's Water Efficiency Program, the City could receive assistance to develop a leak detection program.

6.5 DMM 4: METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

Assembly Bill No. 514 (AB 514) became law in 2003 and promulgated that all Central Valley Project (CVP) municipal contractors are required to install water meters on all residential and commercial services constructed prior to 1992. This bill was enacted in order to prevent the loss of water supplies by CVP municipal contractors, which fail to comply with federal water metering requirements. AB 514 applies to all municipal water suppliers that receive CVP water. In order to comply with AB 514, the City is required to:

- Install water meters on all service connections to residential and commercial buildings constructed prior to January 1992, no later than January 1, 2013.
- Begin charging customers for water based on actual volume used, commencing no later than March 1, 2013.

Installing water meters and billing for actual water use provides a strong incentive for customers to use less water and equalizes service cost for each customer to their actual use (high water users would pay a more equitable share of the system costs). Water metering can reduce exterior landscape water use and can also achieve a modest reduction in interior water use.

The City currently meters and bills for actual water used for commercial and industrial customers, and for all City parks and median landscaping. All of these customers are billed monthly based on a monthly service charge (based on meter size) and a quantity charge (based on actual water consumption). For these customers, actual water use is billed at one rate (\$1.25 per 100 cubic feet).

All connections will be metered by 2019, including converting all existing meters to the new fixed based system (Meter Implementation Plan). The current water service charges include flat rates and metered rates. The metered rates consist of a fixed charge based on connection size and a commodity rate based on usage.

Currently, 6,900 of the 13,300 residential connections are metered (52 percent metered). The City has spent approximately 1.8 million (M) dollars on meter funded projects. To complete meter installation in the City, the City has budgeted \$750,000 for fiscal year (FY) 11/12 and 12/13, \$2.2 M for FY 14/15, \$1.1 M for FY 15/16 and 16/17, and \$3.3 M for FY 17/18.

Methods to Evaluate Effectiveness:

The best way to evaluate the effectiveness of metering is periodic review of customer water use. Additionally, current water use per capita can be compared with historic data (before and after commodity rates are established).

Conservation Savings:

It is estimated that metered accounts may result in a 20 percent reduction in demand compared to non-metered accounts.

Implementation Schedule:

All connections within the City will be metered by January 2019.

Billing at Commodity Rates for Existing Commercial/Industrial/Landscape: On-going.

Billing at Commodity Rates for all metered customers: On-going, no later than March 2013.

Meter Installation: On-going

Methods to Improve Effectiveness:

The City should begin collecting meter data for the existing single-family units that have meters installed. This would establish a baseline of water use for later comparison.

6.6 DMM 5: LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES

The City's Landscape Development Guidelines, adopted by the City Municipal Code Section 17.35.010, requires that a water conservation plan be developed to reduce water consumption related to landscaped areas for all new development. The Code provides standards for plant types, including plants suggested for non-turf areas, to be well suited to the climate of the region and require minimal water once established in the landscape. In addition, City Resolution 90-71 encourages the undertaking of the following voluntary water saving measures related to landscaping: repair sprinklers promptly, plant water efficient landscaping, do not water lawns or landscaping between the hours of noon and 6:00 p.m., water only on alternate days, and install water saving devices on hoses.

The City has developed a Draft Water Efficient Landscape Ordinance (Appendix F) to promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible; establish a structure for planning, designing, installing, maintaining, and managing water efficient landscapes in new construction and rehabilitated projects; establish provisions for water management practices and water waste prevention for existing landscapes; use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount; and promote the benefits of consistent landscape ordinances with neighboring local and regional agencies. The ordinance applies to new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet, new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with an aggregate landscape area equal to or greater than 2,500 square feet over

the entire developed area, new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet, existing landscapes installed before January 2010 greater than one acre, and cemeteries. The ordinance also has water waste prevention measures and allows the City to establish and administer penalties to the project applicant for non-compliance with the ordinance to the extent permitted by law. The City intends to adopt the Water Efficient Landscaping Ordinance with this 2010 UWMP.

In 2002, all of the park and median landscape irrigation in the Southport area was put on a centralized supervisory control and data acquisition (SCADA) control system for efficient control of irrigation. This control system allows the City to evenly distribute peak irrigation demands over several hours, thus reducing the largest peak demands. Additionally, with a centralized unit, the City can control the application rate to better match changing weather conditions.

The City does not currently perform water conservation surveys for large landscapes.

Methods to Evaluate Effectiveness:

Monitoring of the Southport area control system summertime data, the City can determine the effects on peak demands. The City can monitor changes in water use for customers and areas of the City where the Draft Water Efficient Landscape Ordinance applies to evaluate effectiveness.

Conservation Savings:

Savings in the Southport area has not been determined. Peak demands, however, could decrease by as much as five percent. Peak irrigation demands could decrease dramatically citywide by efficiently irrigating and enforcing compliance with the Water Efficient Landscape Ordinance.

Implementation Schedule:

Water-Efficient Landscape Requirements: On-going.

SCADA Control of Landscape Irrigation: On-going.

Water Efficient Landscape Ordinance: On-going.

Methods to Improve Effectiveness:

As a participant in RWA's Water Efficiency Program, the City could receive assistance in obtaining grant funding for water conservation surveys and to develop a program to provide incentives to commercial and industrial customers and home developers to reduce landscape irrigation demands.

6.7 DMM 6: HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS

Typically, a high-efficiency washing machine rebate program would offer a \$35 to \$125 rebate to qualifying customers who install them in their home. Pacific Gas and Electric (PG&E) is an energy service provider for the area and offers rebates for high-efficiency washing machines. For PG&E customers, the washer rebate is \$50 per installation if the high-efficiency washing machine meets PG&E's requirements (Consortium for Energy Efficient Tier 2 model or higher, Modified Energy Factor 2.2 or greater, and Water Factor of 4.5 or less).

The City's website has a link to California's Water Conservation Resource - Save Our Water website through the Public Works Operations/Environmental Program Division. On the Save Our Water website, customers can search for rebates. Applications for PG&E rebates can be accessed through the City website as described above or directly through the PG&E website.

Methods to Evaluate Effectiveness:

The City can review changes in water use for customers that have installed high-efficiency washers, provided the information is available from PG&E.

Conservation Savings:

Savings is hard to determine at this time.

Implementation Schedule:

High-Efficiency Washing Machine Rebate Program: Currently available through PG&E.

Methods to Improve Effectiveness:

Notifying customers of the PG&E rebates as a method of increasing the number of water efficient washing machines could improve water conservation within the City.

6.8 DMM 7: PUBLIC INFORMATION PROGRAMS

The City currently has a well-developed public information program, and intends to continue to provide public information services and materials to remind the public about water and its stewardship. The City produces a newsletter that is mailed to all City residents each quarter. The newsletter traditionally has had a section related to water use, describing water use restrictions and providing water conservation tips, especially landscape watering during the peak summer months. The City also has a number of brochures and other literature regarding specific conservation practices, which are available at various offices, including the water treatment plant and the public works department. These brochures

include information on water-wise landscaping, ways to conserve water, and simple water repairs. These brochures are also available at City special events, council meetings, and community meetings. Additionally, the City includes water conservation information on the City's website.

Methods to Evaluate Effectiveness:

The effectiveness of this program is determined by the amount of information available to the community. To evaluate the information, the City will track the number of brochures distributed, special events attended, and other activities pursued to promote water conservation. The City will also track customer response and any commentary regarding the information provided.

Conservation Savings:

The CUWCC has not quantified the savings of this DMM; however, the City believes that this program is beneficial and necessary to implement other DMMs effectively.

Implementation Schedule:

Quarterly Newsletter to all City residents: On-going.

Distribution of Brochures and Other Literature: On-going.

Methods to Improve Effectiveness:

Public information can be one of the best tools to conserve water. A citizens' advisory committee could assist in developing new ways to communicate with the public and the media about water conservation and other resource issues. A Water Conservation Coordinator, discussed in DMM 12, could optimize the program by coordinating additional opportunities for community speakers and special events. In addition, as a participant in RWA's Water Efficiency Program, the City may participate in regional public outreach programs, including paid advertising on television and radio.

6.9 DMM 8: SCHOOL EDUCATION PROGRAMS

The City has implemented a school education program to promote water conservation and efficient water uses. The month of May has been set aside by the City as "Water Education Month." During this time, visits are made to classrooms to educate the students on water conservation. Information is provided on the importance of water, the water cycle, and the need to conserve the water we have. Activities have been included to help reinforce the information. In addition, the City has sent letters to local schools inviting them to bring their students to the water treatment plant for a tour.

Methods to Evaluate Effectiveness:

The effectiveness of this program is determined by the number of students and schools that participate. To evaluate the effectiveness, the city will track the number of presentation and tours given, curriculum materials provided, and students that participated. The City will also survey the institutions and educators that participate in the program on the number of programs and materials available and recommendations for improvements.

Conservation Savings:

The CUWCC has not quantified the savings of this DMM; but the City believes that this program is beneficial to the community and important to the long-term success of the overall water conservation program effort.

Implementation Schedule:

School Education Programs: On-going.

Bryte Bend Water Treatment Plant Tours: On-going.

Methods to Improve Effectiveness:

Similar to a public information program, a school education program can also be one of the best tools to conserve water. The American Water Works Association (AWWA) and the Water Education Foundation (WEF) provide educational material for youth to explain the water cycle and pollution, and to promote water conservation, including videos, bookmarks, games, and water experiments. The City can continue to improve its school education program by including additional material available from AWWA and WEF. A Water Conservation Coordinator, discussed in DMM 12, could enhance the program by meeting with school principals and educators to promote classroom presentations and field trips to the treatment plant. In addition, as a participant in RWA's Water Efficiency Program, the City could receive additional education materials and information on ways to target the curriculum to specific age groups to effectively teach the students.

6.10 DMM 9: CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL ACCOUNTS

The City's Building Code requires that all new construction install low-flow fixtures, including low-flow faucets and toilets. This requirement includes commercial and industrial facilities. As mentioned previously, the City adopted CalGreen requirements, which applies to state-owned buildings, state university and community college buildings, and privately owned buildings used for retail, office, and medical services. Additionally, as described in DMM 5, the City landscape ordinance also requires that a water conservation plan be developed to reduce water consumption related to landscaped areas for all new development, including commercial and industrial facilities. The Code provides standards for plant types, including

plants suggested for non-turf areas that are well suited to the climate of the region and require minimal water once established in the landscape.

Methods to Evaluate Effectiveness:

The programs in place for this DMM are difficult to evaluate. The best way to determine the effectiveness of this DMM is to monitor the actual water use. The City should monitor the water use of the commercial and industrial customers, and assess demand characteristics and water use patterns. Historic data can be compared to current average annual water use for each account type. When the City has fully implemented its residential metering plan, a similar analysis should be performed.

Conservation Savings:

The actual savings for this DMM will vary; however, the City believes that this program is beneficial and necessary to implement other DMMs effectively.

Implementation Schedule:

Requirements for Low-Flow Fixtures: On-going.

Requirements for Water Efficient Landscape: On-going.

Methods to Improve Effectiveness:

The City should gather additional information about coordinating and cost-sharing with the sanitation department and/or local energy utilities to provide surveys for commercial and industrial customers. In addition, as a participant in RWA's Water Efficiency Program, the City could participate in several programs aimed at water conservation for commercial and industrial customers. These programs could include developing a database of the commercial and industrial water use and providing surveys for facilities to promote water conservation.

6.11 DMM 10: WHOLESALE AGENCY PROGRAMS

This DMM applies to wholesale agencies only and therefore is not applicable to the City.

6.12 DMM 11: CONSERVATION PRICING

Water conservation is encouraged through a pricing system that rewards customers who use less water with financial incentives, while high water users are charged a higher rate. Often this is implemented through a two or three-tiered pricing system. The program rewards customers with lower uses, but may not address conservation as effectively as possible. As the City continues to install water meters, the City will continue to transition customers from flat rate pricing to commodity rate pricing. The residential commodity rate pricing consists of three tiers based on usage. The current City water service charges for

flat rate and commodity rate pricing became effective on December 6, 2007 (Resolution No. 07-82).

Methods to Evaluate Effectiveness:

Conservation pricing is often cited as a means to have market mechanisms provide incentives for conservation. Water consumption, however, has a relatively inelastic demand relative to price, meaning as unit prices go up, unit demand does not correspond in a 1:1 linear fashion. This is due to a variety of factors. Only a portion of water use for a residence can be considered discretionary, generally a portion of landscaping use and excess showering periods and the like. The effectiveness of this DMM can be better determined once the city is fully metered.

Conservation Savings:

Water savings due to conservation pricing is difficult to determine since the City is currently in the process of becoming metered.

Implementation Schedule:

Conservation Pricing: In Process.

Methods to Improve Effectiveness:

In addition to metered water rates, the City should consider charging a sewer service rate for commercial and industrial customers also based on water consumption.

6.13 DMM 12: WATER CONSERVATION COORDINATOR

Although the City does not currently have a Water Conservation Coordinator, this DMM is partially implemented. All demand management related items are handled by the Water Services Superintendent, as time permits. The position of Water Conservation Coordinator would include tasks such as monthly tracking of production versus billed consumption, enforcement of water use restrictions, and implementation of conservation programs.

The City currently does not have a separate budget for the time the Water Services Superintendent spends on demand management related items. However, based on conversations with the City, it has been estimated that approximately 5 percent of the Water Services Superintendent's time is spent handling demand management related issues. This percentage of time equates to an annual budget of approximately \$5,850. An annual budget for a full-time Water Conservation Coordinator would vary, dependent upon qualifications, experience, need of full or part time position, and City requirements.

Methods to Evaluate Effectiveness:

The effectiveness of this DMM is determined by the work performed by the Water Conservation Coordinator (Water Services Superintendent). The City should set up performance standards and goals, and compare them with the results.

Implementation Schedule:

Water Conservation Coordinator: Partially implemented.

Methods to Improve Effectiveness:

The City should consider including water conservation-related staff costs as part of the annual budget. In addition, as a participant in RWA's Water Efficiency Program, the City would receive assistance on developing a job description and determining employment requirements. The RWA would also assist the Water Conservation Coordinator as necessary to improve the City's water conservation programs.

6.14 DMM 13: WATER WASTE PROHIBITIONS

The City has incorporated several ordinances to discourage water waste. The following are sections of the City's water code prohibiting the waste of water (Appendix E). They also provide a mechanism, which the City can use to enforce water conservation measures.

Section 13.04.760 Water Waste. No person shall cause or permit any water furnished to the person's premises by the City to run to waste.

Section 13.04.770 Faulty Fixtures. It shall be unlawful for any person to maintain or allow on the person's premises, leaky or faulty water fixtures or devices to which City water is supplied, so that City water is wasted thereby.

Section 13.04.780 Conservation Devices Required on New Dwelling Units. All new dwelling units connected to the City distribution system after the effective date of the Ordinance shall be equipped with City approved water-saving showerheads, water-saving aerators on sinks and lavatories, water-saving toilets, and pressure-reducing valves.

Section 13.04.790 Conservation Devices Required on New Public Uses. All new public uses connected to the City water distribution system after the effective date of this Ordinance shall be equipped with City approved water-saving showerheads, water-saving toilets, self-closing valves on lavatories, and pressure-reducing valves.

Section 13.04.800 Air Conditioning and Refrigeration Devices. All new or replacement systems using water from the City distribution system or discharging into the City sewer system, installed after the effective date of this Ordinance, shall be equipped with water-conservation devices of sufficient capacity to limit makeup water to a maximum of 0.2

gallons per minute (gpm) per ton of rated capacity under full loading at a maximum summer temperature of 105°F.

Section 13.04.810 Evaporative Coolers. Evaporative coolers installed after the effective date of the Ordinance shall be equipped with a recirculating pump. The makeup supply line shall be equipped with an inlet valve which shall open only when makeup water is required.

Section 13.04.820 Swimming and Wading Pools. All swimming or wading pools installed after the effective date of the Ordinance, which have a capacity of over 2,000 gallons of water, and which use water from the City distribution system or which discharge water into the City sewer system, shall be equipped with recirculating systems and approved filters. Filling or discharging swimming or wading pools shall be limited to the hours between 8:00 p.m. and 7:00 a.m.

Section 13.04.830 Irrigation and Sprinkling. No person shall use, or cause to be used, any City water for the purpose of irrigation or the sprinkling of lawns through an automatic sprinkler for a period exceeding 30 minutes in any valved section or through a hose for a period exceeding 2-1/2 hours during each day.

Section 13.04.840 Charge for Wasted Water. The amount of water wasted in any manner prescribed by this ordinance shall be estimated by the Manager and charged for at the rate set forth by the City.

Section 13.04.850 Construction Uses. Water uses for dust control, curing, compacting, cleaning, or other construction use may be subject to limitations and shall not interfere with other domestic uses.

In addition, the City Council adopted an Urban Water Shortage Contingency Plan, in 1993 which includes a 4-stage rationing program and specific water conservation measures for each stage.

Methods to Evaluate Effectiveness:

The effectiveness of this DMM can be determined by a decrease in violators. The number of citations and violations should be reported annually. If an area is determined to have excessive violations, the City should implement a specific public outreach program informing the public about the specific ordinance.

Conservation Savings:

The CUWCC has not determined any methods to quantify the savings of this DMM but the City believes that this program is necessary to curtail flagrant water waste situations.

Implementation Schedule:

Water waste prohibitions: On-going.

Additional drought restrictions: Program in place. Restrictions within program would be enacted by City Council if water supply conditions required additional conservation measures.

Methods to Improve Effectiveness:

The City should continue to monitor the effectiveness of this DMM. The implementation of a full-time Water Conservation Coordinator would greatly aid in this effort. The City plans to develop a resolution to levee fines against waste prohibition violators. This task will be made significantly easier once the meter implementation program has been completed.

6.15 DMM 14: RESIDENTIAL ULTRA-LOW FLUSH TOILET REPLACEMENT PROGRAMS

The City's Building Code requires that all new residential construction and major remodels or renovations of existing homes install low flow fixtures, including low flow toilets. Additionally, the City has adopted CalGreen building requirements. As the City grows, the percent of ultra-low flush toilets (ULFTs) will grow accordingly. With the expected growth rate for the City, it is estimated that over 70 percent of the single-family residential units will have ULFTs by buildout (2020).

The City implemented a Toilet Rebate Program as part of a Regional Toilet Replacement Grant Program through RWA and the California Department of Water Resources in 2008. The Regional Toilet Replacement Grant Program allowed the City to offset costs of the individual toilet rebates. From 2008 to 2009, the City provided 58 rebates to customers that installed ULFTs.

Methods to Evaluate Effectiveness:

A database can be maintained on the number of new residential units constructed and older residential units remodeled requiring ULFTs, and the average number of toilets per household. This database can be used to determine the percentage of single- and multi-family residential units that have ULFTs.

Conservation Savings:

The data collected by the City regarding the rebate program resulted in an average savings of approximately 2.4 gallons per flush over the high-water-using toilets that were replaced.

Implementation Schedule:

Rebate program: End of grant program in 2009.

Installation of ULFTs required for all new residential construction and major remodels.

Methods to Improve Effectiveness:

To increase the number of retrofits for existing homes in the future, the City should pursue further opportunities for grants through RWA.

CLIMATE CHANGE

The potential water supply and demand effects related to climate change have not been included in this Urban Water Management Plan.

COMPLETED UWMP CHECKLIST

A completed Urban Water Management Plan checklist is attached.

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)		Chapter 1 Section 1.3
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)		Chapter 1 Section 1.3 Appendix A
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)		Appendix B
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)		Chapter 1 Section 1.3 Appendix A
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		Chapter 1 Section 1.3 Appendix A
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		Appendix A
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix B
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Chapter 1, Pg 1-5 Chapter 3, Pg 3-14 Chapter 6

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Chapter 1 Section 1.3 Appendix A
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		Chapter 1 Section 1.3 Appendix A
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Chapter 2 Section 2.1 Figures 1 & 2
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Chapter 2 Section 2.1 and 2.2
10	Indicate the current population of the service area	10631(a)		Chapter 2 Section 2.2 Table 3
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)		Chapter 2 Section 2.2 Table 3
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Chapter 2 Section 2.2
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)		Chapter 3 Section 3.1
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)		Not Applicable
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Not Applicable Until 2015

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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.	Chapter 3 Section 3.2 Tables 8-14
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)		Table 19 [To be included in Appendix A]
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)		Chapter 3 Section 3.2
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)		Chapter 4 Section 4.1 Table 18
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)		Chapter 4 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)		Not Applicable
16	Describe the groundwater basin.	10631(b)(2)		Not Applicable
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Not Applicable
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)		Not Applicable

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Not Applicable
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)		Not Applicable
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)		Not Applicable
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Chapter 4 Section 4.3 Table 20
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)		Chapter 4 Section 4.6
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Chapter 4 Section 4.4
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		Chapter 4 Section 4.5
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)	Guidebook Table 22 is not included in this UWMP. Explanation provided in Section 4.5.1.	Chapter 4 Section 4.5
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)		Chapter 4 Section 4.5

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Chapter 4 Section 4.5
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)		Chapter 4 Section 4.5
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)		Chapter 4 Section 4.5
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)		Chapter 4 Section 4.5
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)		Chapter 4 Section 4.5
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)		Chapter 5 Sections 5.3 & 5.4 Chapter 6
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)		Chapter 5 Section 5.1 Table 22
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)		Chapter 5 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)		Chapter 5 Section 5.3 Table 23

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Chapter 5 Section 5.4
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)		Chapter 5 Section 5.3 Appendix D
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)		Chapter 5 Section 5.3 Table 24
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)		Chapter 5 Section 5.3 Table 25
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Chapter 5 Section 5.3 Table 26
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)		Chapter 5 Section 5.3
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Chapter 5 Section 5.3 Appendix E
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Chapter 5 Section 5.3
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		Chapter 5 Section 5.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
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)		Chapter 5 Section 5.4 Tables 29 to 34
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)		Chapter 6 Table 35
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Chapter 6
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)		Chapter 6
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)		Chapter 6
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)		Not Applicable

OUTREACH DOCUMENTATION FOR PLAN PREPARATION



March 28, 2011

CITY HALL

1110 West Capitol Avenue
West Sacramento, CA 95691

City Council
City Manager
City Clerk
Information Technology
(916) 617-4500

Yolo County
625 Court Street, Room 202
Woodland, CA 95695

Attention: Patrick S. Blacklock, County Administrator

Community Development

Planning/
Development Engineering
(916) 617-4645
Building
(916) 617-4683
Redevelopment
(916) 617-4535
Housing & Community
Investment
(916) 617-4555
Economic Development
(916) 617-4880

Subject: **Notice of Preparation of the 2010 City of West Sacramento Urban Water Management Plan (UWMP)**

Public Works

Operations
(916) 617-4850
Engineering
(916) 617-4645
Flood Protection
(916) 617-4645

Dear Mr. Blacklock:

Pursuant to the requirements of the California Water Code, Division 6, Part 2.6 Urban Water Management Planning, Section 10621 (b), every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

Finance

Administration
(916) 617-4575
Refuse & Recycling
(916) 617-4590
Utility Billing
(916) 617-4589

This letter is intended to notify your agency that the City of West Sacramento (City) is in process of preparing the 2010 UWMP. Based on the City's current schedule, we expect to have a public review draft of the 2010 UWMP available for review in May or June 2011, at which point your agency will receive a notification letter that the draft UWMP is available for public review.

Human Resources

(916) 617-4567

If your agency would like to submit comments or provide input to the City in anticipation of the development of the 2010 UWMP, please submit written copies to:

Parks & Recreation

(916) 617-4620

Vin Cay, Associate Civil Engineer
1110 West Capitol Avenue, Suite 200
West Sacramento, CA 95691

FIRE

2040 Lake Washington Blvd.
West Sacramento, CA 95691
(916) 617-4600
Fax (916) 371-5017

Sincerely,

POLICE

550 Jefferson Boulevard
West Sacramento, CA 95605
(916) 617-4900

CITY OF WEST SACRAMENTO

Code Enforcement

(916) 617-4925

Vin Cay, P.E.
Associate Civil Engineer

PUBLIC WORKS

Operations
1951 South River Road
West Sacramento, CA 95691
(916) 617-4850

cc: Tommy Greci, Carollo Engineers, Inc.





CITY HALL

1110 West Capitol Avenue
West Sacramento, CA 95691

City Council
City Manager
City Clerk
Information Technology
(916) 617-4500

**Community Development
Planning/**

Development Engineering

(916) 617-4645

Building

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Redevelopment

(916) 617-4535

Housing & Community**Investment**

(916) 617-4555

Economic Development

(916) 617-4880

Public Works**Operations**

(916) 617-4850

Engineering

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Flood Protection

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Finance**Administration**

(916) 617-4575

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Utility Billing

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Human Resources

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Parks & Recreation

(916) 617-4620

FIRE

2040 Lake Washington Blvd.

West Sacramento, CA 95691

(916) 617-4600

Fax (916) 371-5017

POLICE

550 Jefferson Boulevard

West Sacramento, CA 95605

(916) 617-4900

Code Enforcement

(916) 617-4925

PUBLIC WORKS**Operations**

1951 South River Road

West Sacramento, CA 95691

(916) 617-4850

October 4, 2011

Yolo County
625 Court Street, Room 202
Woodland, CA 95695

Attention: Patrick S. Blacklock, County Administrator

Subject: **2010 City of West Sacramento Urban Water Management Plan**

Dear Mr. Blacklock:

Pursuant to the requirements of the California Water Code section 10642 and 10608, the West Sacramento City Council will conduct a public hearing to take testimony regarding the adoption of the updated 2010 Urban Water Management Plan for the City of West Sacramento. The hearing is scheduled for October 19, 2011 at 7:30pm in the City Council Chambers.

A copy of the 2010 Urban Water Management Plan can be reviewed at 1110 West Capitol Avenue, 2nd floor, West Sacramento, or accessed and printed off the City's website at www.cityofwestsacramento.org.

If your agency would like to submit comments or provide input to the City prior to the public hearing, please submit written copies to:

Vin Cay, Associate Civil Engineer
1110 West Capitol Avenue, 2nd floor
West Sacramento, CA 95691

Sincerely,

CITY OF WEST SACRAMENTO

VIN H. CAY, P.E.
Associate Civil Engineer

cc: Tommy Greci, Carollo Engineers, Inc.





September 2, 2011

News-Ledger
Attn: Steve Marschke
1050 W. Capitol Ave.
West Sacramento, CA 95691

Reference No: 9022-442

Dear Editor:

Please publish the enclosed notices on the date(s) noted below.

PHN – Ord 11-11

September 7, 2011

Additionally, please forward a Proof of Publication, together with your invoice, upon completion of the ad. Please direct your invoice to: City Manager's Office, Attn.: Kryss Rankin.

The text of the notice is also being provided via e-mail.

Sincerely,

/s/

Kryss Rankin, City Clerk

enclosure(s)

PUBLIC HEARING NOTICE

The West Sacramento City Council will conduct a public hearing on September 21, 2011 at 7:30 PM or as soon thereafter as possible on the following. The hearing will be held in the council chambers at the Civic Center, 1110 West Capitol Ave., West Sacramento. Interested persons are invited to attend. In compliance with the ADA, if you need assistance to participate in this meeting, you should contact the City Clerk at 617-4500. Notification 72 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to this meeting. City hall is handicapped accessible.

1. Presentation of the 2010 Urban Water Management Plan and first reading of Ordinance 11-11 enacting Article XII of Chapter 13.04 of the Municipal Code entitled Water Efficient Landscaping.

**PROOF OF PUBLICATION
(2015.5 CCP)**

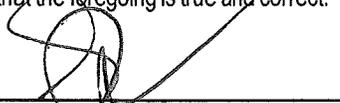
STATE OF CALIFORNIA)
) ss.
County of Yolo)

I am a citizen of the United States and a resident of the County aforesaid. I am over the age of 18 years, and not a party to or interested in the above entitled matter. I am the principal clerk of the printer of The NEWS-LEDGER, a newspaper of general circulation printed and published in the County of Yolo, and which newspaper has been adjudged a Newspaper of General Circulation by the Superior Court of the County of Yolo, State of California, under date of June 4, 1973, Case Number 29812, and under date of September 4, 2009, Case Number CV PT 09-1432; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil) has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

Oct. 5

All in the year 2011

I certify (or declare) under penalty of perjury that the foregoing is true and correct.


Signature: Steven Marschke

Date Oct. 12, 2011

This space is for the County Clerk's filing stamp

Proof of Publication of

Public Hearing Notice -- Urban Water Mgmt.

**PUBLIC HEARING
NOTICE**

Pursuant to the California Water Code section 10642 and 10608, the City Council of the City of West Sacramento will conduct a Public Hearing to take testimony regarding the adoption of the updated 2010 Urban Water Management Plan for the City of West Sacramento. The hearing is scheduled for October 19, 2011 at 7:30 p.m. in the City Council Chambers.

A copy of the 2010 Urban Water Management can be reviewed at 1110 W. Capitol Ave., 2nd floor, West Sacramento, or accessed and printed off the City's web site at www.cityofwestsacramento.org.

For questions concerning the document, please contact Vin Cay at (916)617-4645 or by e-mail at vinc@cityofwestsacramento.org. Written comments are requested by the close of business on October 14, 2011.

Oct 5

**THE
NEWS-LEDGER**

P.O. Box 463 ■ 1040 W. Capitol Ave., Suite B
West Sacramento, CA 95691
(916) 371-8030 ■ FAX 371-8055
www.news-ledger.com

Commitment to Distribute the 2010 Urban Water Management Plan

The documentation currently included in these appendices satisfies California Water Code parts 10621(b) and 10642.

Two other sections of the California Water Code specify UWMP documentation that must take place after the submission of the supplier's UWMP to the DWR. These parts are as follows:

- Part 10644(a), requiring documentation that within 30 days of submitting the UWMP to DWR, the adopted UWMP has been or will be submitted to the California State Library and any city or county to which the supplier provides water.
- Part 10645, requiring documentation that the supplier will make the UWMP available for public review no later than 30 days after submission to DWR.

In order to satisfy these requirements, the City will perform the following actions:

- The City will submit its 2010 UWMP to the California DWR in November 2011.
- The City will send a printed or electronic copy of its 2010 UWMP to the California State Library and to the cities and counties within which it provides water. The City will do this within 30 days from filing with DWR.
- The City will make their 2010 UWMP available for public review within 30 days from filing with DWR.

ADOPTION DOCUMENTATION

RESOLUTION 11-37
A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF WEST SACRAMENTO
ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the City of West Sacramento has prepared and made available to the public for review, an Urban Water Management Plan, dated September 2011, in compliance with the requirement contained in Part 2.6 of Division 6 of the Water Code of the State of California; and

WHEREAS, the aforementioned plan is entitled "City of West Sacramento 2010 Urban Water Management Plan"; and

WHEREAS, the City held a public hearing to receive comments from the public on the plan prior to adoption; and

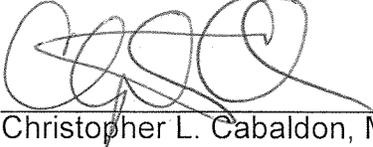
WHEREAS, the City coordinated closely with the California Department of Water Resources and the United States Bureau of Reclamation on the completion of this document; and

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of West Sacramento approves the following:

1. The 2010 Urban Water Management Plan is hereby adopted; and
2. The Superintendent of Water Services is hereby authorized and directed to file this Plan with the California Department of Water Resources.

PASSED AND ADOPTED by the City Council of the City of West Sacramento on this 19th day of October 2011, by the following vote:

AYES: Johannessen, Kristoff, Ledesma, Cabaldon
NOES: None
ABSENT: Villegas



Christopher L. Cabaldon, Mayor

ATTEST:



Kryss Rankin, City Clerk

WATER RIGHTS PERMITS, CONTRACTS, AGREEMENTS

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

77 Cadillac Drive, Sacramento, CA 95825

(916) 920-6307

IN REPLY REFER
To: 333:DEM:25616

JANUARY 14 1981

East Yolo Community Services District
General Manager
P. O. Box 802
West Sacramento, CA 95691

APPLICATION 25616 PERMIT 18150

YOUR WATER RIGHT PERMIT IS ENCLOSED. THE BOARD REQUIRES THAT YOU SUBMIT ANNUAL REPORTS SHOWING THE PROGRESS YOU HAVE MADE IN THE CONSTRUCTION OF YOUR PROJECT OR, IF CONSTRUCTED, THE USE MADE UNDER YOUR PERMIT WHICH WOULD QUALIFY FOR LICENSING PURPOSES. WE WILL MAIL THE FORMS TO YOU WHEN THE REPORTS ARE DUE.

PLEASE NOTE THAT, WITH RESPECT TO OTHER RIGHTS ATTACHING TO THIS SOURCE, THE PRIORITY OF THIS RIGHT COMMENCES WITH THE DATE OF THE APPLICATION. THEREFORE, IN TIME OF WATER SHORTAGE, THOSE WITH RIGHTS SENIOR TO YOURS CAN TAKE THEIR WATER FIRST. ADDITIONAL LIMITATIONS ON THE DIVERSION OF WATER ARE SPECIFIED BY THE TERMS OF THIS PERMIT. YOU SHOULD READ THE TERMS AND CONDITIONS CAREFULLY SO THAT YOU ARE FAMILIAR WITH YOUR RESPONSIBILITIES AS AN APPROPRIATOR OF WATER UNDER THIS ENTITLEMENT.

AFTER THE PROJECT HAS BEEN COMPLETED, AN INSPECTION WILL BE MADE TO DETERMINE THE AMOUNT OF WATER WHICH HAS BEEN PLACED TO BENEFICIAL USE WITHIN THE TERMS OF THE PERMIT. A LICENSE WILL THEN BE ISSUED CONFIRMING A RIGHT TO THAT AMOUNT OF WATER.

PLEASE INFORM US OF ANY CHANGE IN ADDRESS OR OWNERSHIP.

D. W. SABISTON
PROGRAM MANAGER
HEARING SECTION

ENCLOSURE

SWRCB 14a (7/79)

STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 STATE WATER RESOURCES CONTROL BOARD
 DIVISION OF WATER RIGHTS

PERMIT FOR DIVERSION AND USE OF WATER

PERMIT 18150

Application 25616 of EAST YOLO COMMUNITY SERVICES DISTRICT

19515 SOUTH RIVER ROAD, WEST SACRAMENTO, CALIFORNIA 95691

Filed on DECEMBER 22, 1977, 1979, has been approved by the State Water Resources Control Board SUBJECT TO VESTED RIGHTS and to the limitations and conditions of this Permit.

Permittee is hereby authorized to divert and use water as follows:

I. Source:	Tributary to:
<u>SACRAMENTO RIVER</u>	<u>SUISUN BAY</u>

2. Location of point of diversion:	10-acre subdivisions of public land survey or projection thereof	Section	Township	Range	Base and Meridian
<u>ON THE WEST BANK OF THE SACRAMENTO RIVER ABOUT 250 FEET NORTH OF THE CENTER LINE OF THE PIONEER MEMORIAL BRIDGE</u>	<u>NW 1/4 OF NE 1/4</u>	<u>3</u>	<u>8N</u>	<u>4E</u>	<u>MO</u>

County of YOLO

3. Purpose of use:	4. Place of use:	Section	Township	Range	Base and Meridian	Acres
<u>MUNICIPAL</u>	<u>EAST YOLO COMMUNITY SERVICES DISTRICT WITHIN PROJECTED SECTIONS 26 TO 35, 19N, 84E, AND SECTIONS 7 TO 10, 15 TO 18, 19 TO 22, AND 29 AND 30, 18N, 84E, MOBLN.</u>					

The place of use is shown on map filed with the State Water Resources Control Board.

5. THE WATER APPROPRIATED SHALL BE LIMITED TO THE QUANTITY WHICH CAN BE BENEFICIALLY USED AND SHALL NOT EXCEED 62 CUBIC FEET PER SECOND TO BE DIVERTED FROM JANUARY 1 TO JUNE 30 AND FROM SEPTEMBER 1 TO DECEMBER 31 OF EACH YEAR. THE MAXIMUM AMOUNT DIVERTED UNDER THIS PERMIT SHALL NOT EXCEED 18,350 ACRES-FEET PER YEAR.

6. THE AMOUNT AUTHORIZED FOR APPROPRIATION MAY BE REDUCED IN THE LICENSE IF INVESTIGATION WARRANTS.

7. CONSTRUCTION WORK SHALL BE COMMENCED WITHIN TWO YEARS FROM DATE OF PERMIT AND SHALL BE COMPLETED BY DECEMBER 1, 1995.

8. COMPLETE APPLICATION OF THE WATER TO THE AUTHORIZED USE SHALL BE MADE BY DECEMBER 1, 2000.

9. PROGRESS REPORTS SHALL BE SUBMITTED PROMPTLY BY PERMITTEE WHEN REQUESTED BY THE STATE WATER RESOURCES CONTROL BOARD UNTIL LICENSE IS ISSUED.

10. PERMITTEE SHALL ALLOW REPRESENTATIVES OF THE STATE WATER RESOURCES CONTROL BOARD AND OTHER PARTIES AS MAY BE AUTHORIZED FROM TIME TO TIME BY SAID BOARD, REASONABLE ACCESS TO PROJECT WORKS TO DETERMINE COMPLIANCE WITH THE TERMS OF THIS PERMIT.

11. PURSUANT TO CALIFORNIA WATER CODE SECTIONS 100 AND 275, ALL RIGHTS AND PRIVILEGES UNDER THIS PERMIT AND UNDER ANY LICENSE ISSUED PURSUANT THERETO, INCLUDING METHOD OF DIVERSION, METHOD OF USE, AND QUANTITY OF WATER DIVERTED, ARE SUBJECT TO THE CONTINUING AUTHORITY OF THE STATE WATER RESOURCES CONTROL BOARD IN ACCORDANCE WITH LAW AND IN THE INTEREST OF THE PUBLIC WELFARE TO PREVENT WASTE, UNREASONABLE USE, UNREASONABLE METHOD OF USE, OR UNREASONABLE METHOD OF DIVERSION OF SAID WATER.

THE CONTINUING AUTHORITY OF THE BOARD MAY BE EXERCISED BY IMPOSING SPECIFIC REQUIREMENTS OVER AND ABOVE THOSE CONTAINED IN THIS PERMIT WITH A VIEW TO MINIMIZING WASTE OF WATER AND TO MEETING THE REASONABLE WATER REQUIREMENTS OF PERMITTEE WITHOUT UNREASONABLE DRAFT ON THE SOURCE. PERMITTEE MAY BE REQUIRED TO IMPLEMENT SUCH PROGRAMS AS (1) REUSING OR RECLAIMING THE WATER ALLOCATED; (2) USING WATER RECLAIMED BY ANOTHER ENTITY INSTEAD OF ALL OR PART OF THE WATER ALLOCATED; (3) RESTRICTING DIVERSIONS SO AS TO ELIMINATE AGRICULTURAL TAILWATER OR TO REDUCE RETURN FLOW; (4) SUPPRESSING EVAPORATION LOSSES FROM WATER SURFACES; (5) CONTROLLING PHREATOPHYTIC GROWTH; AND (6) INSTALLING, MAINTAINING, AND OPERATING EFFICIENT WATER MEASURING DEVICES TO ASSURE COMPLIANCE WITH THE QUANTITY LIMITATIONS OF THIS PERMIT AND TO DETERMINE ACCURATELY WATER USE AS AGAINST REASONABLE WATER REQUIREMENTS FOR THE AUTHORIZED PROJECT. NO ACTION WILL BE TAKEN PURSUANT TO THIS PARAGRAPH UNLESS THE BOARD DETERMINES, AFTER NOTICE TO AFFECTED PARTIES AND OPPORTUNITY FOR HEARING, THAT SUCH SPECIFIC REQUIREMENTS ARE PHYSICALLY AND FINANCIALLY FEASIBLE AND ARE APPROPRIATE TO THE PARTICULAR SITUATION.

12. THE QUANTITY OF WATER DIVERTED UNDER THIS PERMIT AND UNDER ANY LICENSE ISSUED PURSUANT THERETO IS SUBJECT TO MODIFICATION BY THE STATE WATER RESOURCES CONTROL BOARD IF, AFTER NOTICE TO THE PERMITTEE AND AN OPPORTUNITY FOR HEARING, THE BOARD FINDS THAT SUCH MODIFICATION IS NECESSARY TO MEET WATER QUALITY OBJECTIVES IN WATER QUALITY CONTROL PLANS WHICH HAVE BEEN OR HEREAFTER MAY BE ESTABLISHED OR MODIFIED PURSUANT TO DIVISION 7 OF THE WATER CODE. NO ACTION WILL BE TAKEN PURSUANT TO THIS PARAGRAPH UNLESS THE BOARD FINDS THAT (1) ADEQUATE WASTE DISCHARGE REQUIREMENTS HAVE BEEN PRESCRIBED AND ARE IN EFFECT WITH RESPECT TO ALL WASTE DISCHARGES WHICH HAVE ANY SUBSTANTIAL EFFECT UPON WATER QUALITY IN THE AREA INVOLVED, AND (2) THE WATER QUALITY OBJECTIVES CANNOT BE ACHIEVED SOLELY THROUGH THE CONTROL OF WASTE DISCHARGES.

13. IN ACCORDANCE WITH SECTION 1603 AND/OR SECTION 6100 OF THE FISH AND GAME CODE, NO DIVERSION FACILITY SHALL BE CONSTRUCTED OR WATER DIVERTED UNDER THIS PERMIT UNTIL APPLICANT HAS CONSULTED A STREAM OR LAKE ALTERATION AGREEMENT WITH THE DEPARTMENT OF FISH AND GAME AND/OR THE DEPARTMENT HAS DETERMINED THAT MEASURES NECESSARY TO PROTECT FISHLIFE HAVE BEEN INCORPORATED INTO THE PLANS AND CONSTRUCTION OF SUCH DIVERSION FACILITY. THE CONSTRUCTION, OPERATION, OR MAINTENANCE COSTS OF ANY FACILITY REQUIRED PURSUANT TO THIS PROVISION SHALL BE BORNE BY THE PERMITTEE.

14. THE STATE WATER RESOURCES CONTROL BOARD RESERVES JURISDICTION OVER THIS PERMIT TO CHANGE THE SEASON OF DIVERSION TO CONFORM TO THE RESULTS OF A COMPREHENSIVE ANALYSIS OF THE AVAILABILITY OF UNAPPROPRIATED WATER IN THE SACRAMENTO RIVER BASIN. ACTION TO CHANGE THE SEASON OF DIVERSION WILL BE TAKEN ONLY AFTER NOTICE TO INTERESTED PARTIES AND OPPORTUNITY FOR HEARING.

15. THIS PERMIT IS SUBJECT TO PRIOR RIGHTS. PERMITTEE IS PUT ON NOTICE THAT DURING SOME YEARS WATER WILL NOT BE AVAILABLE FOR DIVERSION DURING PORTIONS OR ALL OF THE SEASON AUTHORIZED HEREIN. THE ANNUAL VARIATIONS IN DEMANDS AND HYDROLOGIC CONDITIONS IN THE SACRAMENTO RIVER BASIN ARE SUCH THAT IN ANY YEAR OF WATER SCARCITY THE SEASON OF DIVERSION AUTHORIZED HEREIN MAY BE REDUCED OR COMPLETELY ELIMINATED ON ORDER OF THIS BOARD MADE AFTER NOTICE TO INTERESTED PARTIES AND OPPORTUNITY FOR HEARING.

16. NO DIVERSION IS AUTHORIZED BY THIS PERMIT WHEN SATISFACTION OF INBASIN ENTITLEMENTS REQUIRES RELEASE OF SUPPLEMENTAL PROJECT WATER. THE BOARD SHALL ADVISE PERMITTEE OF THE PROBABILITY OF IMMINENT CURTAILMENT OF DIVERSIONS AS FAR IN ADVANCE AS PRACTICABLE BASED ON ANTICIPATED REQUIREMENTS FOR SUPPLEMENTAL PROJECT WATER PROVIDED BY THE CENTRAL VALLEY PROJECT OR THE STATE WATER PROJECT OPERATORS. THE BOARD SHALL NOTIFY THE PERMITTEE OF CURTAILMENT OF DIVERSIONS WHEN IT FINDS THAT NO WATER IS AVAILABLE FOR DIVERSION UNDER THIS PERMIT.

FOR THE PURPOSE OF INITIALLY DETERMINING SUPPLEMENTAL PROJECT WATER REQUIRED FOR INBASIN ENTITLEMENTS, THE FOLLOWING DEFINITIONS SHALL APPLY:

- A. INBASIN ENTITLEMENTS ARE DEFINED AS ALL RIGHTS TO DIVERT WATER FROM STREAMS TRIBUTARY TO THE SACRAMENTO-SAN JOAQUIN DELTA OR THE DELTA FOR USE WITHIN THE RESPECTIVE BASINS OF ORIGIN OR THE LEGAL DELTA, UNAVOIDABLE NATURAL REQUIREMENTS FOR RIPARIAN HABITAT AND CONVEYANCE LOSSES, AND FLOWS REQUIRED BY THE BOARD FOR MAINTENANCE OF WATER QUALITY AND FISH AND WILDLIFE. EXPORT DIVERSIONS AND PROJECT CARRIAGE WATER ARE SPECIFICALLY EXCLUDED FROM THE DEFINITION OF INBASIN ENTITLEMENTS.
- B. SUPPLEMENTAL PROJECT WATER IS DEFINED AS WATER IMPORTED TO THE BASIN BY THE PROJECTS, AND WATER RELEASED FROM PROJECT STORAGE, WHICH IS IN EXCESS OF WATER REQUIRED FOR PROJECT EXPORT AND PROJECT INBASIN DELIVERIES.

NOTICE OF CURTAILMENT OF DIVERSION UNDER THIS TERM SHALL NOT BE ISSUED BY THE BOARD UNTIL:

1. PROJECT OPERATORS JOINTLY DEVELOP AND DEMONSTRATE TO THE BOARD A REASONABLY ACCURATE METHOD OF CALCULATING SUPPLEMENTAL PROJECT WATER.
 2. THE BOARD HAS APPROVED THE METHOD OF CALCULATING SUPPLEMENTAL PROJECT WATER AND HAS CONFIRMED THE DEFINITIONS OF INBASIN ENTITLEMENTS AND SUPPLEMENTAL PROJECT WATER AFTER PUBLIC HEARING.
 3. THE PROJECT OPERATORS HAVE NOTIFIED THE BOARD THAT THE RELEASE OF SUPPLEMENTAL PROJECT WATER IS IMMINENT OR HAS OCCURRED. SUCH NOTICE SHOULD INCLUDE THE TIMES AND AMOUNTS OF RELEASES OR POTENTIAL RELEASES.
 4. THE BOARD FINDS THAT SUPPLEMENTAL PROJECT WATER HAS BEEN RELEASED OR WILL BE RELEASED.
17. IN ORDER TO PREVENT DEGRADATION OF THE QUALITY OF WATER DURING AND AFTER CONSTRUCTION OF THE PROJECT, PRIOR TO COMMENCEMENT OF CONSTRUCTION PERMITTEE SHALL FILE A REPORT PURSUANT TO WATER CODE SECTION 13260 AND SHALL COMPLY WITH ANY WASTE DISCHARGE REQUIREMENTS IMPOSED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, CENTRAL VALLEY REGION, OR BY THE STATE WATER RESOURCES CONTROL BOARD.
18. THE STATE WATER RESOURCES CONTROL BOARD RETAINS CONTINUING AUTHORITY OVER THIS PERMIT AND ANY LICENSE ISSUED PURSUANT THERETO TO REQUIRE PERMITTEE TO IMPLEMENT A WATER CONSERVATION PROGRAM TO ASSURE THAT WATER IS NOT BEING USED IN A WASTEFUL OR UNREASONABLE MANNER.
19. THE TOTAL QUANTITY OF WATER DIVERTED UNDER THIS PERMIT, TOGETHER WITH THAT DIVERTED UNDER CONTRACT WITH THE UNITED STATES SHALL NOT EXCEED 23,600 ACRE-Feet PER ANNUM.

This permit is issued and permittee takes it subject to the following provisions of the Water Code:

Section 13200. A permit shall be effective for such time as the water normally appropriated under it is available for a useful and beneficial purpose in conformity with the division (of the Water Code), but no longer.

Section 13201. Every permit shall include the enumeration of conditions therein which in substance shall include all of the provisions of this article and the statement that any appropriation of water to whom a permit is issued takes it subject to the conditions therein approved.

Section 13202. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever to anyone of the actual amount paid to the State therefore shall at any time be subject to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any debt created or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any municipal public authority of the amount or the price of the water to be regulated by any permittee or by the holder of any right created or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district or any political subdivision of the State, of the right and property of any permittee, or the proceeds of any right created, issued, or acquired under the provisions of this division (of the Water Code).

Dated: JANUARY 14 1951

STATE WATER RESOURCES CONTROL BOARD

/s/ L. C. Spencer, Jr.
CHIEF, DIVISION OF WATER RIGHTS

ASSUMPTION OF CONTRACT AND CONSENT THERETO

CONTRACT BETWEEN THE UNITED STATES OF AMERICA AND EAST YOLO
COMMUNITY SERVICES DISTRICT, diverter of water from Sacramento River
sources, providing for Project water service and agreement on diversion of
water.

CONTRACT NO. 0-07-20-W0187

ASSUMPTION OF CONTRACT

CITY OF WEST SACRAMENTO hereby assumes Contract No. 0-07-20-W0187
and agrees to be bound by and perform all the terms and conditions of said
contract, dated July 1, 1980, a copy of which is attached hereto as Exhibit
"A" and incorporated herein by this reference.

CITY OF WEST SACRAMENTO

Dated: May 17, 1989

By *[Signature]*

CONSENT TO ASSUMPTION OF CONTRACT

THE UNITED STATES OF AMERICA hereby consents to the assumption by
the CITY OF WEST SACRAMENTO of Contract No. 0-07-20-W0187 between the
UNITED STATES and EAST YOLO COMMUNITY SERVICES DISTRICT.

THE UNITED STATES OF AMERICA

Dated: _____

By _____

DIWSACS

EXHIBIT A

UNITED STATES
DEPARTMENT OF THE INTERIOR
WATER AND POWER RESOURCES SERVICE
Central Valley Project, California

Contract No.
0-07-20-W0187

CONTRACT BETWEEN THE UNITED STATES OF AMERICA AND
EAST YOLO COMMUNITY SERVICES DISTRICT, DIVERTER OF WATER FROM
SACRAMENTO RIVER SOURCES, PROVIDING FOR PROJECT WATER
SERVICE AND AGREEMENT ON DIVERSION OF WATER

Table of Contents

<u>Article No.</u>	<u>Title</u>	<u>Page No.</u>
	Preamble	1
	Explanatory Recitals	1- 2
1	Definitions	3
2	Term of Contract	4
3	Water to be Furnished to the Contractor	4- 7
4	Quality of Water	7
5	Return Flow	7
6	Water Shortage and Apportionment	8
7	Rate of Payment and Quantity of Water to be Paid For	9-12
8	Method of Payment for Water	12-13
9	Agreement on Water Quantities	13-16
10	Point of Diversion and Measurement of Water	16
11	Schedules	17-18
12	Compliance with Rules and Regulations	18
13	Penalty for Delinquent Payments	18
14	Assignment Limited--Successors and Assigns Obligated	19
15	Officials Not to Benefit	19
16	Contingent on Appropriation or Allotment of Funds	19
17	Books, Records, and Reports	19
18	Equal Opportunity	20-21
19	Title VI, Civil Rights Act of 1964	22
20	Water and Air Pollution Control	23
21	General Obligation--Benefits Conditioned Upon Payment	23
22	Notices	23
23	Confirmation of Contract	23-24
24	Changes in Contractor's Service Area	24
	Signature Page	24
Exhibit A	Map of Contractor's Service Area	

1 UNITED STATES
2 DEPARTMENT OF THE INTERIOR
3 WATER AND POWER RESOURCES SERVICE
4 Central Valley Project, California

Contract No.
0-07-20-W0187

5 CONTRACT BETWEEN THE UNITED STATES OF AMERICA AND
6 EAST YOLO COMMUNITY SERVICES DISTRICT, DIVERTER OF WATER FROM
7 SACRAMENTO RIVER SOURCES, PROVIDING FOR PROJECT WATER
8 SERVICE AND AGREEMENT ON DIVERSION OF WATER

9 THIS CONTRACT, made this 15th day of July, 1980, in
10 pursuance generally of the Act of June 17, 1902 (32 Stat. 388), and
11 acts amendatory or supplementary thereto, between THE UNITED STATES OF
12 AMERICA, hereinafter referred to as the United States, acting through
13 the Secretary of the Interior, and the EAST YOLO COMMUNITY SERVICES
14 DISTRICT, hereinafter referred to as the District or Contractor, a
15 public agency of the State of California, duly organized, existing,
16 and acting pursuant to the laws thereof, with its principal place of
17 business in West Sacramento, California.

18 WITNESSETH, That:

19 EXPLANATORY RECITALS

20 WHEREAS, pursuant to authorizing acts, the United States has
21 under construction and is operating the Central Valley Project, California
22 for the development, conservation, and utilization of water resources
in California in the Sacramento, the American, the San Joaquin, and
the Trinity River Basins; and

Preamble
Explanatory Recitals

1 WHEREAS, the Contractor asserts that it will obtain rights
2 to divert, and will divert, for reasonable beneficial use, water from
3 the natural flow of the Sacramento River; and

4 WHEREAS, the construction and operation of the integrated
5 and coordinated Central Valley Project have changed and will further
6 change the regimen of the Sacramento, American, San Joaquin, and
7 Trinity Rivers and the Sacramento-San Joaquin Delta from unregulated
8 flow to regulated flow; and

9 WHEREAS, the United States asserts that it has rights to
10 divert, is diverting, and will continue to divert waters from said
11 Rivers and said Delta in connection with the operation of the said
12 Central Valley Project; and

13 WHEREAS, to assure the Contractor of the enjoyment and use
14 of the regulated flow of said Rivers and Delta, and to provide for
15 the economical operation of the Central Valley Project by, and the
16 reimbursement to, the United States for expenditures made for said
17 Project;

18 NOW, ~~THEREFORE~~, in consideration of the performance of the
19 herein contained provisions, conditions, and covenants, it is agreed
20 as follows:

21
22

1 (b) If at any time on the basis of studies conducted by
2 the Contracting Officer and the Contractor jointly it is determined
3 that the water needs of the Contractor for the remainder of the term
4 of this contract are for quantities greater or lesser than the maximum
5 quantity established in this article, the parties may amend this con-
6 tract so as to decrease, or to the extent that additional water is
7 available, as determined by the Contracting Officer, increase the
8 quantities of water to be furnished by the United States. It also
9 shall be the right of the Contractor to contract with other parties or
10 develop its own additional water supplies provided that the development
11 of such water supplies shall not involve the use of any facilities or
12 water rights of the United States without its permission.

13 (c) Water diverted by the Contractor under this contract
14 shall be used or furnished by the Contractor only for M&I purposes.

15 (d) No sale or other disposal of any water or the right to
16 the use thereof for use on land other than that shown on Exhibit A
17 shall be made by the Contractor without first obtaining the written
18 consent of the United States thereto.

19 (e) The Contractor shall develop and implement an effective
20 water conservation program for all water diverted under this contract.
21 That water conservation program shall contain definite goals, appropri-
22 ate water conservation measures, and time schedules for meeting the

1 water conservation objectives. While the contents and standards of
2 a given water conservation program are primarily matters of State
3 and local determination, there is a strong Federal interest in
4 developing an effective water conservation program because of this
5 contract.

6 (f) A water conservation program, acceptable to the Contract-
7 ing Officer, shall be in existence prior to diversion of water pursuant
8 to this contract. At 5-year intervals, thereafter, the Contractor shall
9 resubmit, and the Contracting Officer shall review the water conserva-
10 tion program. After consultation with the Contractor, the Contracting
11 Officer may require modifications to the water conservation program.

12 (g) The United States assumes no responsibility for and
13 neither it nor its officers, agents, or employees shall have any
14 liability for or on account of:

15 (1) The control, carriage, handling, use, disposal,
16 or distribution of said water outside the facilities constructed
17 and then being operated and maintained by the United States;

18 (2) Claims of damage of any nature whatsoever, in-
19 cluding, but not limited to, property loss or damage, personal
20 injury or death arising out of or connected with the control,
21 carriage, handling, use, disposal, or distribution of said water
22 outside of the hereinabove referred to facilities; and

1 (3) Any damage whether direct or indirect arising out
2 of or in any manner caused by a shortage of water whether such
3 shortage be on account of errors in operation, drought, or un-
4 avoidable causes.

5 QUALITY OF WATER

6 4. The United States assumes no responsibility with respect to
7 the quality of water to be furnished pursuant to this contract, it
8 being understood and agreed that the Contractor shall be solely
9 responsible for such treatment as may be required to render such
10 water suitable for the purposes for which it is to be used.

11 RETURN FLOW

12 5. The United States reserves the right to the use of all waste,
13 seepage, and return-flow water derived from Project water diverted
14 from the Sacramento River by the Contractor and which escapes or is
15 discharged beyond the boundaries of the area shown on Exhibit A and
16 nothing herein shall be construed as an abandonment or a relinquish-
17 ment by the United States of the right to use any such water.

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WATER SHORTAGE AND APPORTIONMENT

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6. (a) In its operation of the Project, the United States will use all reasonable means to guard against a condition of shortage in the quantity of water available to the Contractor pursuant to this contract. Nevertheless, if a shortage does occur during any year because of drought, or other causes which, in the opinion of the Contracting Officer, are beyond the control of the United States, no liability shall accrue against the United States or any of its officers, agents, or employees for any damage, direct or indirect, arising therefrom.

(b) In any year that the Contracting Officer determines there is a shortage in the quantity of water available to customers of the United States from the Project, the Contracting Officer will apportion available water among the water users by reducing deliveries to all users by the same percentage, unless he is prohibited by existing contract, Project authorizations, or he determines that some other method of apportionment is required to prevent undue hardship.

1 RATE OF PAYMENT AND QUANTITY OF WATER TO BE PAID FOR

2 7. (a) The Contractor shall make payments to the United States
3 each year at the rate of \$9.00 for each acre-foot of Project water
4 required to be paid for in accordance with subdivision (d) of this
5 article.

6 (b) The water rate shall be adjusted effective January 1,
7 1981, and every 5th year thereafter to account for changes in costs
8 (including operation, maintenance and replacement) for Project water
9 supply, as appropriate, in accordance with the then current M&I rate
10 setting policies of the Project.

11 (c) The Contracting Officer will make available to the
12 Contractor the computations, appropriate rate policy, and cost
13 allocation upon which any proposed rate adjustment is based and will
14 afford the Contractor not less than 3 months to study, to comment,
15 and the opportunity to consult on the proposed adjustment of rates,
16 the rate policies, or the cost allocation procedures before announcing
17 an adjustment of the rate. Final determination of an adjustment will
18 be announced by the Contracting Officer after consideration of the
19 Contractor's comments but not less than 6 months prior to the effective
20 date thereof.

1 (d) The Contractor shall pay for the quantity of water
2 determined in accordance with the following:

3 (1) Twenty percent of all water diverted from the
4 Sacramento River during the month of June of each year;

5 (2) Eighty-eight percent of all water diverted from
6 the Sacramento River during the month of July each year; and

7 (3) One Hundred percent of the water diverted from the
8 Sacramento River during the months of August and September
9 of each year.

10 (e) Notwithstanding the provisions of subdivision (d)
11 of this article the Contractor shall have paid for, by October 31
12 of each year, the quantity of water shown on the following table
13 (years shown in the table refer to the year of execution of this
14 contract and the following years): Provided, That if the Contractor
15 is unable in any year to accept quantity sufficient to satisfy the
16 total minimum for that year, the amount of payments for water not used
17 may be applied to meet the payment for water taken in excess of the
18 minimum requirement in any of the subsequent 5 years but not thereafter:
19 Provided further, That payments for water received in excess of the
20 annual minimum may be used to satisfy minimum payments due during any
21 of the subsequent 5 years but not thereafter.
22

TABLE OF MINIMUM DELIVERIES

<u>Year</u>	<u>Acres-Feet</u>
1	105
2	215
3	320
4	430
5	535
6	640
7	750
8	855
9	965
10	1,070
11	6,300
12	6,450
13	6,610
14	6,770
15	6,910
16	7,060
17	7,210
18	7,360
19	7,500
20	7,630
21	7,750
22	7,870
23	8,000
24	8,120
25	8,230
26	8,330
27	8,440
28	8,540
29	8,650
30	8,760
31	8,860
32	8,970
33	9,080
34	9,180
35	9,270
36	9,350
37	9,430
38	9,510
39	9,590
40	9,680

1 (b) Adjustment for any difference between the payment
2 for the scheduled quantities of water and payment for the
3 quantities of water actually diverted in any month shall be
4 made in the month immediately following: Provided, That the
5 quantity of water paid for in any year shall not be less than
6 the quantity necessary to fulfill the minimum quantity require-
7 ment or the actual quantity delivered in that year, as specified
8 and provided in subdivision (e) of Article 7. By November 1
9 the Contractor shall make any additional payment necessary to
10 pay for the total quantity of water the Contractor is obligated
11 to pay for that year pursuant to Article 7.

12 (c) In the event the Contractor is unable, fails, or
13 refuses to divert the quantities of water available for
14 diversion by it and which it is required to pay for pursuant
15 to this contract, said inability, failure, or refusal shall
16 not relieve the Contractor of the obligation to pay for such
17 water, and the Contractor agrees to make payment in the same
18 manner as if such water had been diverted by the Contractor.

19 AGREEMENT ON WATER QUANTITIES

20 9. (a) During the term of this contract and any renewal
21 thereof:
22

1 (1) It shall constitute full agreement as between
2 the United States and the Contractor as to the quantity of
3 water and the allocation thereof between base supply and
4 Project water which may be diverted by the Contractor from
5 the Sacramento River for beneficial use within the area shown
6 on Exhibit A which said diversion, use, and allocation shall
7 not be disturbed so long as the Contractor shall fulfill all
8 of its obligations hereunder; and

9 (2) The Contractor shall not claim any right against
10 the United States in conflict with the provisions hereof.

11 (b) Nothing herein contained is intended to or does limit
12 rights of the Contractor against others than the United States or
13 of the United States against any person other than the Contractor:
14 Provided, however, That in the event the Contractor, the United
15 States, or any other person shall become a party to a general
16 adjudication of rights to the use of water of the Sacramento River
17 system, this contract shall not jeopardize the rights or position
18 of either party hereto or of any other person and the rights of all
19 such persons in respect to the use of such water shall be determined
20 in such proceedings the same as if this contract had not been entered
21 into, and if final judgment in any such general adjudication shall
22 determine that the rights of the parties hereto are different from

1 the rights as assumed herein, the United States shall submit to the
2 Contractor an amendment to give effect to such judgment and the
3 contract shall be deemed to have been amended accordingly unless
4 within 60 days after submission of such amendment to the Contractor
5 the Contractor elects to terminate the contract or within the same
6 period of time that parties agree upon mutually satisfactory amend-
7 ments to give effect to such judgment.

8 (c) In the event this contract terminates, the rights of
9 the parties to thereafter divert and use water shall exist as if
10 this contract had not been entered into. However, the fact that
11 this contract places a limit on the total supply to be diverted
12 annually by the Contractor during the contract term and segregates
13 it into base supply and Project water, shall not jeopardize the
14 rights or position of either party with respect to its water rights
15 or the yield thereof at all times after the contract terminates. It
16 is further agreed that the Contractor at all times will first use water
17 to the use of which it is entitled by virtue of its own water rights,
18 and neither the provisions of this contract, action taken thereunder, nor
19 payments made thereunder to the United States by the Contractor shall be
20 construed as an admission that any part of the water used by the Con-
21 tractor during the term of this contract was in fact water to which it
22 would not have been entitled under water rights owned by it nor shall

1 receipt of payments thereunder by the United States from the Con-
2 tractor be construed as an admission that any part of the water used
3 by the Contractor during the term of this contract was in fact water
4 to which it would have been entitled under water rights owned by it.

5 POINT OF DIVERSION AND MEASUREMENT OF WATER

6 10. (a) All water diverted by the Contractor from Sacramento
7 River will be diverted at such point or points as may, be mutually
8 agreed upon in writing by the Contracting Officer and the Contractor.

9 (b) All water diverted by the Contractor at the point or
10 points established pursuant to subdivision (a) of this article through
11 metering facilities installed and operated and maintained by the
12 Contractor at the Contractor's expense. Upon request of the Contracting
13 Officer the accuracy of such measurements may be investigated by either
14 of the parties and any errors appearing therein adjusted.

15 (c) A computation of the total quantity of water diverted
16 each month by the Contractor from the Sacramento River shall be
17 furnished by the Contractor to the Contracting Officer on or before
18 the 7th day of the following month or at other times upon the request
19 of the Contracting Officer.

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SCHEDULES

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11. (a) Before November 1 of each year, the Contractor shall submit a schedule in writing to the Contracting Officer in a form and from an operational standpoint satisfactory to the Contracting Officer indicating the desired times and quantities for the delivery of water pursuant to this contract during the following year. Within the provisions hereof, the United States shall attempt to make said water available in accordance with said schedule or any revision thereof satisfactory to the Contracting Officer submitted by the Contractor within a reasonable time before the desired change of times or quantities, or both, for delivery.

(b) If in any year after the Contracting Officer has approved a schedule or any revision thereof submitted by the Contractor pursuant to subdivision (a) of this article, the United States is unable to furnish any portion of the water in the quantities, and at the times requested in the schedule and the Contractor does not elect to divert and does not divert such water at other times during such year, the Contractor shall be entitled to an adjustment as provided in Article 8 hereof.

(c) If the Contractor during any month diverts a quantity of water in addition to that which it has requested for such month in its schedule, the Contractor shall be deemed to have revised its

1 schedule and ordered such additional water and the United States
2 shall be deemed to have accepted such revision as satisfactory.
3 As soon thereafter as possible the Contractor shall submit a revised
4 schedule to the United States for the remaining quantity to be
5 diverted during that year.

6 COMPLIANCE WITH RULES AND REGULATIONS

7 12. The Secretary may from time to time promulgate rules and
8 regulations to implement the reclamation laws. The Contractor agrees
9 to abide by such final rules and regulations lawfully adopted. This
10 contract is subject to all such lawful rules and regulations now or
11 hereafter in force when not inconsistent with any express and specific
12 provisions herein. Such rules and regulations are made a part of this
13 contract.

14 PENALTY FOR DELINQUENT PAYMENTS

15 13. The Contractor shall pay a penalty on installments or
16 charges which become delinquent computed at the rate of 1% per
17 month of the amount of such delinquent installments or charges
18 for each day from such delinquency until paid: Provided, That
19 no penalty shall be charged to the Contractor unless such delin-
20 quency continues for more than 30 days in which event the penalty
21 shall accrue from the initial date of delinquency.

1 ASSIGNMENT LIMITED--SUCCESSORS AND ASSIGNS OBLIGATED

2 14. The provisions of this contract shall apply to and bind the
3 successors and assigns of the parties hereto, but no assignment or
4 transfer of this contract or any part or interest therein shall be
5 valid until approved by the Contracting Officer.

6 OFFICIALS NOT TO BENEFIT

7 15. (a) No member of or delegate to Congress or resident
8 commissioner shall be admitted to any share or part of this contract
9 or to any benefit that may arise herefrom, but this restriction shall
10 not be construed to extend to this contract if made with a corporation
11 for its general benefit.

12 (b) No official of the Contractor shall receive any benefit
13 that may arise by reason of this contract other than as a water user
14 within the Project and in the same manner as other water users within
15 the Project.

16 CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

17 16. The expenditure or advance of any money or the performance
18 of any work by the United States hereunder which may require appropri-
19 ation of money by the Congress or the allotment of funds shall be
20 contingent upon such appropriation or allotment being made. The
21 failure of the Congress to appropriate funds or the absence of any
22 allotment of funds shall not relieve the Contractor from any obliga-
23 tions then accrued under this contract and no liability shall accrue
24 to the United States in case such funds are not appropriated or allotted.

25 BOOKS, RECORDS, AND REPORTS

26 17. The Contractor shall establish and maintain accounts and
27 other books and records pertaining to its financial transactions,
28 land use and crop census, water supply, water use, and to other
29 matters as the Contracting Officer may require for purposes of
30 this contract. Reports thereon shall be furnished to the Contracting
31 Officer in such form and on such date or dates as he may require.
31 Subject to applicable Federal laws and regulations, each party shall
32 have the right during office hours to examine and make copies of
33 each other's books and records relating to matters covered by this
34 contract.

EQUAL OPPORTUNITY

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18. During the performance of this contract, the Contractor agrees as follows:

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(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

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(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without discrimination because of race, color, religion, sex, or national origin.

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(3) The Contractor will send to each labor union or representative of workers, with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Contracting Officer, advising the said labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

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(4) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and of the rules, regulations, and relevant orders of the Secretary of Labor.

1 (5) The Contractor will furnish all information and
2 reports required by said amended Executive Order and by
3 the rules, regulations, and orders of the Secretary of
4 Labor, or pursuant thereto, and will permit access to its
5 books, records, and accounts by the Contracting Officer
6 and the Secretary of Labor for purposes of investigation
7 to ascertain compliance with such rules, regulations, and
8 orders.

9 (6) In the event of the Contractor's noncompliance
10 with the nondiscrimination clauses of this contract or
11 with any of the said rules, regulations, or orders, this
12 contract may be canceled, terminated, or suspended, in
13 whole or in part, and the Contractor may be declared
14 ineligible for further Government contracts in accordance
15 with procedures authorized in said amended Executive Order,
16 and such other sanctions may be imposed and remedies invoked
17 as provided in said Executive Order, or by rule, regulation,
18 or order of the Secretary of Labor, or as otherwise provided
19 by law.

20 (7) The Contractor will include the provisions of para-
21 graphs (1) through (7) in every subcontract or purchase order
22 unless exempted by the rules, regulations, or orders of the
23 Secretary of Labor issued pursuant to Section 204 of said
24 amended Executive Order, so that such provisions will be
25 binding upon each subcontractor or vendor. The Contractor
26 will take such action with respect to any subcontract or
27 purchase order as may be directed by the Secretary of Labor
28 as a means of enforcing such provisions, including sanctions
29 for noncompliance: Provided, however, That in the event a
30 Contractor becomes involved in, or is threatened with,
31 litigation with a subcontractor or vendor as a result of
32 such direction, the Contractor may request the United States
33 to enter into such litigation to protect the interests of
34 the United States.

TITLE VI, CIVIL RIGHTS ACT OF 1964

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2 19. (a) The Contractor agrees that it will comply with Title VI
3 of the Civil Rights Act of July 2, 1964 (78 Stat. 241) and all require-
4 ments imposed by or pursuant to the Department of the Interior Regulation
5 (43 CFR 17) issued pursuant to that title, to the end that, in accordance
6 with Title VI of that Act and the Regulation, no person in the United
7 States shall, on the grounds of race, color, sex, or national origin
8 be excluded from participation in, be denied the benefits of, or be
9 otherwise subjected to discrimination under any program or activity
10 for which the Contractor receives financial assistance from the United
11 States and hereby gives assurance that it will immediately take any
12 measures to effectuate this agreement.

13 (b) If any real property or structure thereon is provided
14 or improved with the aid of Federal financial assistance extended to
15 the Contractor by the United States, this assurance obligates the Con-
16 tractor, or, in the case of any transfer of such property, any transferee
17 for the period during which the real property or structure is used for a
18 purpose involving the provision of similar services or benefits. If
19 any personal property is so provided, this assurance obligates the
20 Contractor for the period during which it retains ownership or possession
21 of the property. In all other cases, this assurance obligates the Con-
22 tractor for the period during which the Federal financial assistance
23 is extended to it by the United States.

24 (c) This assurance is given in consideration of and for
25 the purpose of obtaining any and all Federal grants, loans, contracts,
26 property, discounts, or other Federal financial assistance extended
27 after the date hereof to the Contractor by the United States, including
28 installment payments after such date on account of arrangements for
29 Federal financial assistance which were approved before such date.
30 The Contractor recognizes and agrees that such Federal financial
31 assistance will be extended in reliance on the representations and
32 agreements made in this assurance, and that the United States shall
33 reserve the right to seek judicial enforcement of this assurance.
34 This assurance is binding on the Contractor, its successors, trans-
35 ferees, and assignees.

1 of the State of California approving and confirming the contract and
2 decreeing and adjudging it and the apportionment of the benefits made
3 thereunder to be lawful, valid, and binding on the Contractor. The
4 Contractor shall furnish to the United States a certified copy of such
5 decree and of all pertinent supporting records.

6 CHANGES IN CONTRACTOR'S SERVICE AREA

7 24. While this contract is in effect, no change shall be made
8 in the Contractor's service area by inclusion or exclusion of lands,
9 by dissolution, consolidation, merger, or otherwise except upon the
10 Contracting Officer's written consent in advance.

11 IN WITNESS WHEREOF, the parties hereto have executed this
12 contract the day and year first hereinabove written.

13 THE UNITED STATES OF AMERICA

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17 By M.A. Oatman
18 Acting Regional Director, Mid-Pacific Region
19 Water and Power Resources Service
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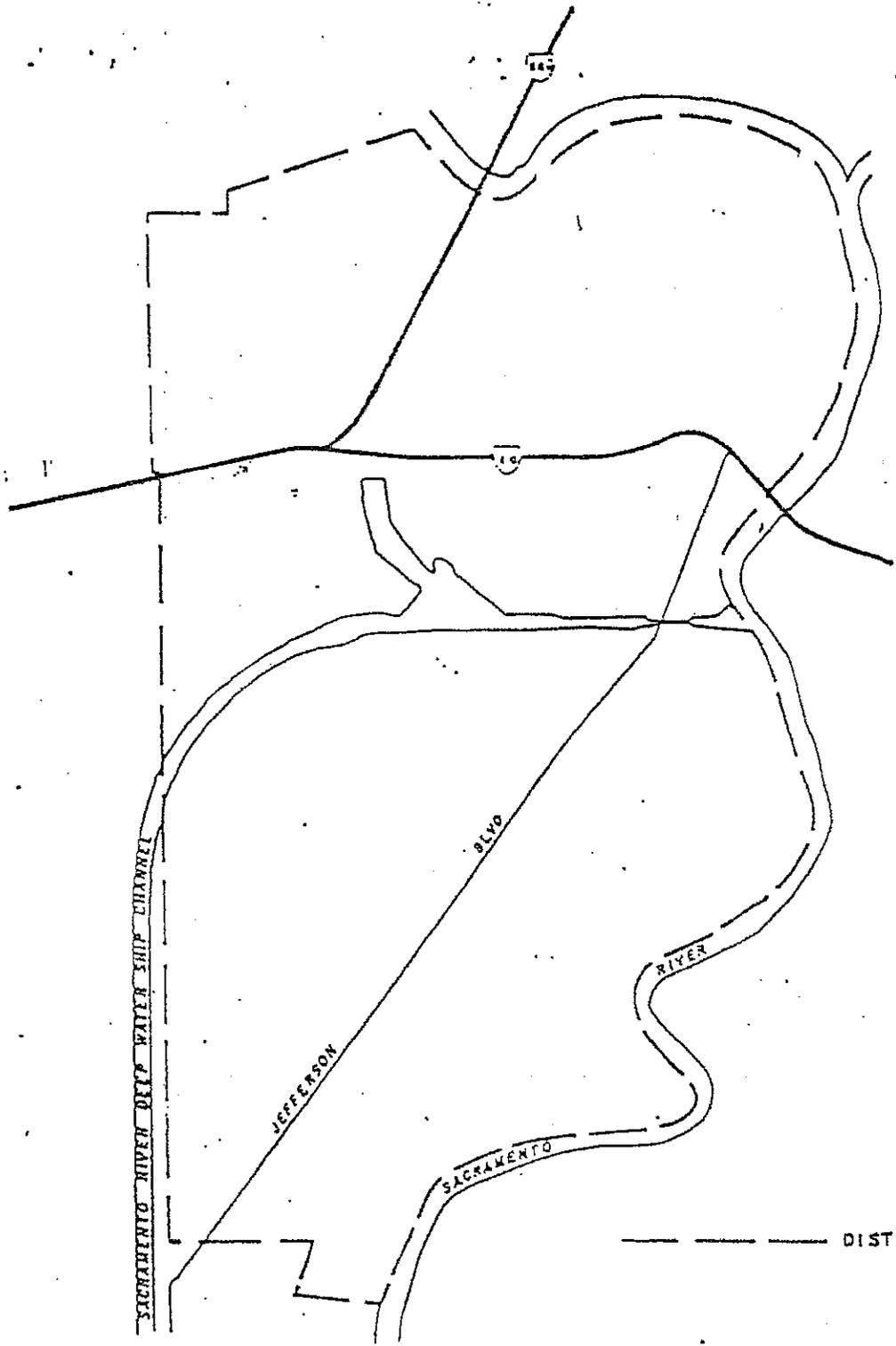
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23 EAST YOLO COMMUNITY SERVICES DISTRICT

24
25 (SEAL)

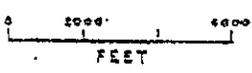
26
27 By Carl R. Anderson
28 President

29 Attest:

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32 William B. ...
Secretary



----- DISTRICT BOUNDARY



UNITED STATES
DEPARTMENT OF THE INTERIOR
WATER AND POWER RESOURCES SERVICE
CENTRAL VALLEY PROJECT
SACRAMENTO RIVER DIVISION-CALIF.
EAST YOLO COMMUNITY SERVICE DISTRICT
DISTRICT BOUNDARY
EXHIBIT A

RESOLUTION NO. 79- 40

1
2 OF THE BOARD OF DIRECTORS OF THE EAST
3 YOLO COMMUNITY SERVICES DISTRICT APPROVING
4 CONTRACT BETWEEN THE UNITED STATES OF AMERICA
5 AND THE EAST YOLO COMMUNITY SERVICES DISTRICT
6 FOR DIVERSION OF WATER AND AUTHORIZING EXE-
7 CUTION

8 WHEREAS, the East Yolo Community Services District has
9 negotiated a contract with the United States of America, Department
10 of Interior, Water and Power Resources Service, for a surface water
11 supply for the District and its inhabitants; and

12 WHEREAS, the United States Department of Interior has
13 forwarded the contract to the District for execution pursuant to a
14 cover letter dated December 7, 1979; and

15 WHEREAS, said contract has been approved by the voters of
16 this District, and by the Board of Directors, and appears to be in
17 appropriate form;

18 NOW, THEREFORE, BE IT RESOLVED by the Board of Directors
19 of the East Yolo Community Services District that the Contract
20 Between The United States of America and The East Yolo Community
21 Services District, Diverter of Water From Sacramento River Sources
22 Providing for Project Water Service and Agreement on Diversion of
23 Water REV.W.O. 7/18/79 is hereby approved by the Board of Director
24 of this District and the President and the Secretary of the Dis-
25 trict are hereby authorized and directed to execute same.

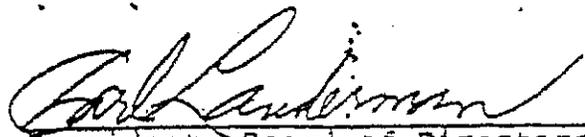
26 The foregoing resolution was duly passed at a regular
27 meeting of the Board of Directors of the East Yolo Community Ser-
28 vices District held on the 20th day of December, 1979 by the
following vote on roll call:

///

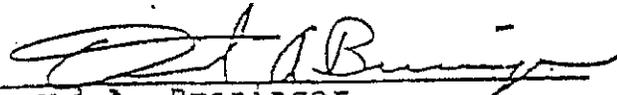
AYES: Kristoff, Misfeldt, Landerman, Collins, Cameron

NOES: NONE

ABSENT: NONE


President, Board of Directors

ATTEST:

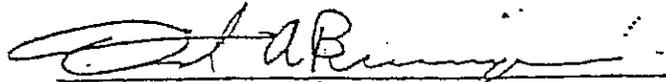

David A. Breninger
Secretary, Board of Directors

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C E R T I F I C A T I O N

I, David A. Breninger, Secretary of the Board of Directors of the East Yolo Community Services District, certify that the foregoing Resolution No. 79-40 is a true copy of the same resolution adopted by a meeting of the East Yolo Community Services District held on December 20, 1979 and the foregoing is in full force and effect on this date.

Dated: December 24, 1979



David A. Breninger
Secretary, Board of Directors
East Yolo Community
Services District

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United States Department of the Interior

BUREAU OF RECLAMATION
MID-PACIFIC REGIONAL OFFICE
2500 COTTAGE WAY
SACRAMENTO, CALIFORNIA 95825-1895

IN REPLY
REFER TO:

MP-440
832

APR 24 1989

Mr. Larry S. Gossett
Department of Public Works
City of West Sacramento
PO Box 449
West Sacramento CA 95691

Subject: Contract Assumption, Commencement of Diversions, and Critical Year Reductions, City of West Sacramento, Central Valley Project (Your Letters Dated August 30, 1988; December 30, 1988; and January 23, 1989) (Water Service)

Dear Mr. Gossett:

Thank you for enclosing a copy of Resolution No. 85-13 (Resolution), dated October 23, 1985, of the Yolo County Local Agency Formation Commission in your December 30, 1988, letter to the Bureau of Reclamation (Reclamation). This letter is also intended to facilitate the completion of the contract assumption, and to formally advise the City of West Sacramento (City) of the restoration of Central Valley Project (CVP) long-term water entitlements.

The Resolution provides, among other matters, for the dissolution of the East Yolo Community Services District (East Yolo) and assumption by the City of the functions of East Yolo. We are enclosing for signature by the proper official of the City a consent of assumption form. Execution of the consent form by the City, and thereafter by the Regional Director of Reclamation's Mid-Pacific Region, will formalize and complete the assumption of Contract No. 0-07-20-W0187 (Contract W0187) by the City.

Your August 30, 1988, letter states the City intends to initiate delivery of CVP water in 1989 pursuant to Contract W0187. Reclamation is pleased to be able to provide water service to the City. As a result of the initiation of diversions and pursuant to subdivision (d) of Article 7 of Contract W0187, the City must pay the United States for the following quantities of water:

1. Twenty percent of all water diverted during the month of June of each year;
2. Eighty eight percent of all water diverted during the month of July of each year; and,
3. One hundred percent of all water diverted during the months of August and September of each year.

Commencement of diversions by the City will institute a change in the method of payments relative to those made in prior years. In accordance with the requirements of subdivision (a) of Article 8 of Contract W0187, the City is required to pay prior to June 1 of each year for all CVP water to be diverted during June and July. Before the end of June and July the City is required to pay for all CVP Project water scheduled to be diverted during the month thereafter. All such payments will include credit for water not used but previously paid for, if the City takes in excess of its minimum requirements in any of the subsequent 5 years as provided by subdivision (e) of Article 7.

On March 31, 1989, Reclamation announced full restoration of long-term CVP water entitlements. Due to heavy precipitation and snowfall in March 1989, the United States has withdrawn the scheduled imposition of water deficiencies upon CVP contractors.

We request the City to submit its future water schedules and other contract matter to Reclamation's Willows Office, PO Box 988, Willows, CA 95988-0988. Mr. Jaklitsch is available at the Willows Office to answer questions regarding your contract or other related matters. He may be contacted at (916) 934-7066.

Sincerely,



NEIL W. SCHILD
ASSISTANT REGIONAL DIRECTOR

Enclosure

MEETING DATE: May 17, 1989

ITEM #

SUBJECT:

CONSIDERATION OF RESOLUTION NO. 89-67
APPROVING ASSUMPTION OF CONTRACT NO. 0-07-20-20187
BETWEEN THE UNITED STATES OF AMERICA AND THE CITY OF WEST SACRAMENTO

INITIATED OR REQUESTED BY: Council
 Staff Other

REPORT COORDINATED OR PREPARED BY:


Larry S. Gossett, Director of Public Works

ATTACHMENT No INFORMATION DIRECTION ACTION

RECOMMENDED ACTION

IT IS RECOMMENDED that your Council adopt Resolution No. 89-67, approving the Assumption of Contract No. 0-07-20-W0187 between the United States of America and the City of West Sacramento.

REASON FOR RECOMMENDED ACTION

To formalize the assumption of the contract for Sacramento River Water diversion originally entered into between the US Bureau of Reclamation and East Yolo Community Services District.

BACKGROUND AND DISCUSSION

On July 1, 1980, East Yolo Community Services District Board of Directors entered into a contract with the U.S. Department of Interior, Bureau of Reclamation to divert Central Valley Project water from the Sacramento River for treatment in the Bryte Bend Water Treatment Plant. The contract provides for diversion of a maximum of 23,600 acre feet of water annually for 40 years at an initial rate of \$9.00 for each acre foot. This rate is to be adjusted every 5th year to account for changes in costs for project water.

The City of West Sacramento uses water provided by the State of California Department of Water Resources, at no cost, from 1 October thru 31 May each year. However, only Bureau of Reclamation Central Valley Project Water is available June thru September each year.

ATTACHMENTS

- 1. Resolution No. 89-67
- 2. Bureau Letter with Contract

RESOLUTION NO. 89-67
APPROVING ASSUMPTION OF CONTRACT NO. 0-07-20-W0187
BETWEEN THE UNITED STATES OF AMERICA AND THE CITY OF WEST SACRAMENTO
FOR DIVERSION OF WATER AND AUTHORIZING EXECUTION

WHEREAS, on July 1, 1980 the Board of Directors of the East Yolo Community Services District entered into Contract No. 0-07-20-W01987 with the United States of America, Department of the Interior which authorized the diversion of Central Valley Project water from Sacramento River sources for a surface water supply for the residents of West Sacramento and surrounding areas; and

WHEREAS, on January 1, 1987, the East Yolo Community Services District was dissolved by the incorporation of the City of West Sacramento ("City"); and

WHEREAS, the City is the successor to all rights, duties, and obligations of the dissolved District; and

WHEREAS, the United States Department of the Interior requires that City assume said contract by executing the Consent of Assumption attached hereto as Exhibit A and incorporated herein.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of West Sacramento hereby approved the assumption of Contract No. 0-07-20-W0187 and agrees to be bound by and perform all the terms and conditions of said contract dated July 1, 1980 and that the Mayor is hereby authorized to execute said contract on behalf of the City.

PASSED AND ADOPTED by the City Council of the City of West Sacramento at a regular meeting held on this 17th day of May, 1989 by the following vote on roll call:

AYES:
NOES:
ABSENT:

ATTEST:

Fidel A. Martinez, Mayor

Helen M. Kanowsky, Deputy City Clerk

CONTRACT
BETWEEN
STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
AND
NORTH DELTA WATER AGENCY

FOR THE ASSURANCE
OF A DEPENDABLE WATER SUPPLY OF SUITABLE QUALITY

TABLE OF CONTENTS

Topic	Page
RECITALS	1
AGREEMENTS	1
1. Definitions	1
2. Water Quality	2
3. Monitoring	2
4. Emergency Provisions	2
5. Overland Water Supply Facilities	2
6. Flow Impact	2
7. Place of Use of Water	3
8. Scope of Contract	3
9. Term of Contract	3
10. Amount and Method of Payment for Water	3
11. Participation of the United States	3
12. Remedies	3
13. Comparable Treatment	4
GENERAL PROVISIONS	
14. Amendments	4
15. Reservation with Respect to State Laws	4
16. Opinions and Determinations	4
17. Successors and Assigns Obligated	4
18. Assignment and Subcontract	4
19. Books, Records, Reports and Inspections Thereof	4
20. Waiver of Rights	4
21. Assurance Relating to Validity of Contract	4
22. Notices	4
ATTACHMENTS	
Attachment A. Water Quality Contract Criteria	5
Part 1 of 4, Sacramento at Emmatton	
Part 2 of 4, North Fork Mokelumne at Walnut Grove, Sacramento at Walnut Grove, Steamboat Slough at Sutter Slough	
Part 3 of 4, San Joaquin at San Andreas Landing, Sacramento at Rio Vista	
Part 4 of 4, Mokelumne at Terminous	
Attachment B. Location of Water Quality Stations	6

CONTRACT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
AND THE NORTH DELTA WATER AGENCY
FOR THE ASSURANCE OF A DEPENDABLE WATER SUPPLY OF SUITABLE QUALITY

THIS CONTRACT, made this 28 day of Jan, 1981, between the STATE OF CALIFORNIA, acting by and through its DEPARTMENT OF WATER RESOURCES (State), and the NORTH DELTA WATER AGENCY (Agency), a political subdivision of the State of California, duly organized and existing pursuant to the laws thereof, with its principal place of business in Sacramento, California.

RECITALS

(a) The purpose of this contract is to assure that the State will maintain within the Agency a dependable water supply of adequate quantity and quality for agricultural uses and, consistent with the water quality standards of Attachment A, for municipal and industrial uses, that the State will recognize the right to the use of water for agricultural, municipal, and industrial uses within the Agency, and that the Agency will pay compensation for any reimbursable benefits allocated to water users within the Agency resulting from the Federal Central Valley Project and the State Water Project, and offset by any detriments caused thereby.

(b) The United States, acting through its Department of the Interior, has under construction and is operating the Federal Central Valley Project (FCVP).

(c) The State has under construction and is operating the State Water Project (SWP).

(d) The construction and operation of the FCVP and SWP at times have changed and will further change the regimen of rivers tributary to the Sacramento-San Joaquin Delta (Delta) and the regimen of the Delta channels from unregulated flow to regulated flow. This regulation at times improves the quality of water in the Delta and at times diminishes the quality from that which would exist in the absence of the FCVP and SWP. The regulation at times also alters the elevation of water in some Delta channels.

(e) Water problems within the Delta are unique within the State of California. As a result of the geographical location of the lands of the Delta and tidal influences, there is no physical shortage of water. Intrusion of saline ocean water and municipal, industrial and agricultural discharges and return flows, tend, however, to deteriorate the quality.

(f) The general welfare, as well as the rights and requirements of the water users in the Delta, require that there be maintained in the Delta an adequate supply of good quality water for agricultural, municipal and industrial uses.

(g) The law of the State of California requires protection of the areas within which water originates and the watersheds in which water is developed. The Delta is such an area and within such a watershed. Part 4.5 of Division 6 of the California Water Code affords a first priority to provision of salinity control and maintenance of an adequate water supply in the Delta for reasonable and beneficial uses of water and relegates to lesser priority all exports of water from the Delta to other areas for any purpose.

(h) The Agency asserts that water users within the Agency have the right to divert, are diverting, and will continue to divert, for reasonable beneficial use, water from the Delta that would have been available therein if the FCVP and SWP were not in existence, together with the right to enjoy or acquire such benefits to which the water users may be entitled as a result of the FCVP and SWP.

(i) Section 4.4 of the North Delta Water Agency Act, Chapter 83, Statutes of 1973, as amended, provides that the Agency has no authority or power to affect, bind, prejudice, impair, restrict, or limit vested water rights within the Agency.

(j) The State asserts that it has the right to divert, is diverting, and will continue to divert water from the Delta in connection with the operation of the SWP.

(k) Operation of SWP to provide the water quality and quantity described in this contract constitutes a reasonable and beneficial use of water.

(l) The Delta has an existing gradient or relationship in quality between the westerly portion most seriously affected by ocean salinity intrusion and the interior portions of the Delta where the effect of ocean salinity intrusion is diminished. The water quality criteria set forth in this contract establishes minimum water qualities at various monitoring locations. Although the water quality criteria at upstream locations is shown as equal in some periods of some years to the water quality at the downstream locations, a better quality will in fact exist at the upstream locations at almost all times. Similarly, a better water quality than that shown for any given monitoring location will also exist at interior points upstream from that location at almost all times.

(m) It is not the intention of the State to acquire by purchase or by proceeding in eminent domain or by any other manner the water rights of water users within the Agency, including rights acquired under this contract.

(n) The parties desire that the United States become an additional party to this contract.

AGREEMENTS

1. Definitions. When used herein, the term:

(a) "Agency" shall mean the North Delta Water Agency and shall include all of the lands within the boundaries at the time the contract is executed as described in Section 9.1 of the North Delta Water Agency Act, Chapter 283, Statutes of 1973, as amended.

(b) "Calendar year" shall mean the period January 1 through December 31.

(c) "Delta" shall mean the Sacramento-San Joaquin Delta as defined in Section 12220 of the California Water Code as of the date of the execution of the contract.

(d) "Electrical Conductivity" (EC) shall mean the electrical conductivity of a water sample measured in millimhos per centimeter per square centimeter corrected to a standard temperature of 25° Celsius determined in accordance with procedures set forth in the publication entitled "Standard Methods of Examination of Water and Waste Water", published jointly by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation, 13th Edition, 1971, including such revisions thereof as may be made subsequent to the date of this contract which are approved in writing by the State and the Agency.

(e) "Federal Central Valley Project" (FCVP) shall mean the Central Valley Project of the United States.

(f) "Four-River Basin Index" shall mean the most current forecast of Sacramento Valley unimpaired runoff as presently published in the California Department of Water Resources Bulletin 120 for the sum of the flows of the following: Sacramento River above Bend Bridge near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. The May 1 forecast shall continue in effect until the February 1 forecast of the next succeeding year.

(g) "State Water Project" (SWP) shall mean the State Water Resources Development System as defined in Section 12931 of the Water Code of the State of California.

(h) "SWRCB" shall mean the State Water Resources Control Board.

(i) "Water..."

through September 30 of the following year.

2. Water Quality.

(a) (i) The State will operate the SWP to provide water qualities at least equal to the better of: (1) the standards adopted by the SWRCB as they may be established from time to time; or (2) the criteria established in this contract as identified on the graphs included as Attachment A.

(ii) The 14-day running average of the mean daily EC at the identified location shall not exceed the values determined from the Attachment A graphs using the Four-River Basin Index except for the period February through March of each year at the location of the Sacramento River at Emmaton for which the lower value of the 80 percent probability range shall be used.

(iii) The quality criteria described herein shall be met at all times except for a transition period beginning one week before and extending one week after the date of change in periods as shown on the graphs of Attachment A. During this transition period, the SWP will be operated to provide as uniform a transition as possible over the two-week period from one set of criteria to the next so as to arrive at the new criteria one week after the date of change in period as shown on the graphs of Attachment A.

(b) While not committed affirmatively to achieving a better water quality at interior points upstream from Emmaton than those set forth on Attachment A, the State agrees not to alter the Delta hydraulics in such manner as to cause a measurable adverse change in the ocean salinity gradient or relationship among the various monitoring locations shown on Attachment B and interior points upstream from those locations, with any particular flow past Emmaton.

(c) Whenever the recorded 14-day running average of mean daily EC of water in the Sacramento River at Sacramento exceeds 0.25 mmhos, the quality criteria indicated on the graphs of Attachment A may be adjusted by adding to the value taken therefrom the product of 1.5 times the amount that the recorded EC of the Sacramento River at Sacramento exceeds 0.25 mmhos.

3. Monitoring. The quality of water shall be measured by the State as needed to monitor performance pursuant to Article 2 thereof with equipment installed, operated, and maintained by the State, at locations indicated on "Attachment B". Records of such measurements shall at regular intervals be furnished to the Agency. All monitoring costs at North Fork Mokelumne River near Walnut Grove, Sacramento River at Walnut Grove, and Steamboat Slough at Sutter Slough incurred by the State solely for this contract shall be shared equally by the Agency and the State. All monitoring costs to be borne by the Agency for monitoring at the above locations are included in the payment under Article 10.

4. Emergency Provisions.

(a) If a structural emergency occurs such as a levee failure or failure of an SWP facility, which results in the State's failure to meet the water quality criteria, the State shall not be in breach of this contract if it makes all reasonable efforts to operate SWP facilities so that the water quality criteria will be met again as soon as possible. For any period in which SWP failure results in failure of the State to meet the water quality criteria, the State shall waive payment under Article 10, prorated for that period, and the amount shall be deducted from the next payment due.

(b) (i) A drought emergency shall exist when all of the following occur:

(1) The Four-River Basin Index is less than an average of 9,000,000 acre feet in two consecutive years (which occurred in 1933-4 and 1976-7); and

(2) An SWRCB emergency regulation is in effect prohibiting for the operation of the SWP to maintain water quality different from that provided in this contract; and

SWP agricultural contractors in the San Joaquin Valley is being reduced by at least 50 percent of these agricultural entitlements (it being the objective of the SWP to avoid agricultural deficiencies in excess of 25 percent) or the total of water supplied to meet annual entitlements of all SWP contractors is being reduced by at least 15 percent of all entitlements, whichever results in the greater reduction in acre feet delivered.

(ii) A drought emergency shall terminate if any of the conditions in (b) (i) of this Article ceases to exist or if the flow past Sacramento after October 1 exceeds 20,000 cubic feet per second each day for a period of 30 days.

(iii) Notwithstanding the provisions of Article 2 (a), when a drought emergency exists, the emergency water quality criteria of the SWRCB shall supersede the water quality requirements of this contract to the extent of any inconsistency; provided, however, that the State shall use all reasonable efforts to preserve Delta water quality, taking into consideration both the limited water supply available for that purpose and recognizing the priority established for Delta protection referred to in Recital (g).

(iv) When a drought emergency exists, and an overland supply is not available to an individual water user comparable in quality and quantity to the water which would have been available to the user under Attachment A, the State shall compensate the user for loss of net income for each acre either (A) planted to a more salt-tolerant crop in the current year, (B) not planted to any crop in the current year provided such determination not to plant was reasonable based on the drought emergency, or (C) which had a reduced yield due to the drought emergency, calculated on the basis of the user's average net income for any three of the prior five years for each such acre. A special contract claims procedure shall be established by the State to expedite and facilitate the payment of such compensation.

5. Overland Water Supply Facilities.

(a) Within the general objectives of protecting the western Delta areas against the destruction of agricultural productivity as a result of the increased salinity of waters in the Delta channels resulting in part from SWP operation, the State may provide diversion and overland facilities to supply and distribute water to Sherman Island as described in the report entitled "Overland Agricultural Water Facilities Sherman Island" dated January 1980. Final design and operating specifications shall be subject to approval of the Agency and Reclamation District No. 341. The Agency or its transferee will assume full ownership, operation, and maintenance responsibility for such facilities after successful operation as specified. After the facilities are constructed and operating, the water quality criteria for the Sacramento River at Emmaton shall apply at the intake of the facilities in Three Mile Slough.

(b) The State and the Agency may agree to the construction and operation of additional overland water supply facilities within the Agency, so long as each landowner served by the overland facilities receives a quality of water not less than that specified in Attachment A for the upstream location nearest to his original point of diversion. The design and operation of such facilities and the cost sharing thereof are subject to approval of any reclamation district which includes within its boundaries the area to be served. The ownership, operation, and maintenance of diversion works and overland facilities shall be the subject of a separate agreement between the Agency or its transferees and the State.

6. Flow Impact. The State shall not convey SWP water so as to cause a decrease or increase in the natural flow; or reversal of the natural flow direction; or to cause the water surface elevation in Delta channels to be altered, to the detriment of Delta channels or water users within the Agency. If lands, levees, embankments, or revetments adjacent to Delta channels within the Agency incur

fied as a result of altered water surface elevations as a result of the conveyance of water from the SWP to lands outside the Agency after the date of this contract, the State shall repair or alleviate the damage, shall improve the channels as necessary, and shall be responsible for all diversion facility modifications required.

7. Place of Use of Water.

(a) Any subcontract entered into pursuant to Article 18 shall provide that water diverted under this contract for use within the Agency shall not be used or otherwise disposed of outside the boundaries of the Agency by the subcontractor.

(b) Any subcontract shall provide that all return flow water from water diverted within the Agency under this contract shall be returned to the Delta channels. Subject to the provisions of this contract concerning the quality and quantity of water to be made available to water users within the Agency, and to any reuse or recapture by water users within the Agency, the subcontractor relinquishes any right to such return flow, and as to any portion thereof which may be attributable to the SWP, the subcontractor recognizes that the State has not abandoned such water.

(c) If water is attempted to be used or otherwise disposed of outside the boundaries of the Agency so that the State's rights to return flow are interfered with, the State may seek appropriate administrative or judicial action against such use or disposal.

(d) This article shall not relieve any water user of the responsibility to meet discharge regulations legally imposed.

8. Scope of Contract.

(a) During the term of this contract

(i) This contract shall constitute the full and sole agreement between the State and the Agency as to (1) the quality of water which shall be in the Delta channels, and (2) the payment for the assurance given that water of such quality shall be in the Delta channels for reasonable and beneficial uses on lands within the Agency, and said diversions and uses shall not be disturbed or challenged by the State so long as this contract is in full force and effect.

(ii) The State recognizes the right of the water users of the Agency to divert from the Delta channels for reasonable and beneficial uses for agricultural, municipal and industrial purposes on lands within the Agency, and said diversions and uses shall not be disturbed or challenged by the State so long as this contract is in full force and effect, and the State shall furnish such water as may be required within the Agency to the extent not otherwise available under the water rights of water users.

(iii) The Agency shall not claim any right against the State in conflict with the provisions hereof so long as this contract remains in full force and effect.

(b) Nothing herein contained is intended to or does limit rights of the Agency against others than the State, or the State against any person other than the Agency and water users within the Agency.

(c) This contract shall not affect, bind, prejudice, impair, restrict, or limit vested water rights within the Agency.

(d) The Agency agrees to defend affirmatively as reasonable and beneficial the water qualities established in this contract. The State agrees to defend affirmatively as reasonable and beneficial the use of water required to provide and sustain the qualities established in this contract. The State agrees that such use should be examined only after determination by a court of competent jurisdiction that all uses of water exported from the Delta by the State and by the United States, for agricultural, municipal, and industrial purposes are reasonable and beneficial, and that irrigation practices, conservation efforts, and groundwater management within areas served by such exported water should be examined in particular.

the Delta so long as this contract remains in full force and effect and the State is in compliance herewith.

9. Term of Contract.

(a) This contract shall continue in full force and effect until such time as it may be terminated by the written consent and agreement of the parties hereto, provided that 40 years after execution of this contract and every 40 years thereafter, there shall be a six-month period of adjustment during which any party to this contract can negotiate with the other parties to revise the contract as to the provisions set out in Article 10. If, during this period, agreement as to a requested revision cannot be achieved, the parties shall petition a court of competent jurisdiction to resolve the issue as to the appropriate payment to be made under Article 10. In revising Article 10, the court shall review water quality and supply conditions within the Agency under operation of the FCVP and SWP, and identify any reimbursable benefits allocated to water users within the Agency resulting from operation of the FCVP and SWP, offset by any detriments caused thereby. Until such time as any revision is final, including appeal from any ruling of the court, the contract shall remain in effect as without such revision.

(b) In the event this contract terminates, the parties' water rights to quality and quantity shall exist as if this contract had not been entered into.

10. Amount and Method of Payment for Water.

(a) The Agency shall pay each year as consideration for the assurance that an adequate water supply and the specific water quality set forth in this contract will be maintained and monitored, the sum of one hundred seventy thousand dollars (\$170,000.00). The annual payments shall be made to the State one-half on or before January 1 and one-half on or before July 1 of each year commencing with January 1, 1982.

(b) The payment established in (a) above shall be subject to adjustment as of January 1, 1987, and every fifth year thereafter. The adjusted payment shall bear the same relation to the payment specified in (a) above that the mean of the State's latest projected Delta Water Rate for the five years beginning with the year of adjustment bears to \$10.00 per acre foot; provided that, no adjusted payment shall exceed the previous payment by more than 25 percent.

(c) The payments provided for in this article shall be deposited by the State in trust in the California Water Resources Development System Revenue Account in the California Water Resources Development Bond Fund. The trust shall continue for five years (or such longer period as the State may determine) but shall be terminated when the United States executes a contract as provided in Article 11 with the State and the Agency at which time the proportion of the trust fund that reflects the degree to which the operation of the FCVP has contributed to meeting the water quality standard under this contract as determined solely by the State shall be paid to the United States (with a pro rata share of interest). In the event that the United States has not entered into such a contract before the termination of the trust, the trust fund shall become the sole property of the State.

11. Participation of the United States. The Agency will exercise its best efforts to secure United States joinder and concurrence with the terms of this contract and the State will diligently attempt to obtain the joinder and concurrence of the United States with the terms of this contract and its participation as a party hereto. Such concurrence and participation by the United States in this contract shall include a recognition ratified by the Congress that the excess land provisions of Federal reclamation law shall not apply to this contract.

12. Remedies.

formance of the provisions of this contract by a decree of the Superior Court in Sacramento County requiring the State to meet the standards set forth in this contract. If the water quality in Delta channels falls below that provided in this contract, then, at the request of the Agency, the State shall cease all diversions to storage in SWP reservoirs or release stored water from SWP reservoirs or cease all export by the SWP from Delta channels, or any combination of these, to the extent that such action will further State compliance with the water quality standards set forth in this contract, except that the State may continue to export from Delta channels to the extent required to meet water quality requirements in contracts with the Delta agencies specified in Section 11456 of the California Water code.

(b) To the extent permitted by law, the State agrees to forego the use of eminent domain proceedings to acquire water rights of water users within the Agency or any rights acquired under this contract for water or water quality maintenance for the purpose of exporting such water from the Delta. This provision shall not be construed to prohibit the utilization of eminent domain proceedings for the purpose of acquiring land or any other rights necessary for the construction of water facilities.

(c) Except as provided in the water quality assurances in Article 2 and the provisions of Article 6 and Article 8, neither the State nor its officers, agents, or employees shall be liable for or on account of:

(i) The control, carriage, handling, use, disposal, or distribution of any water outside the facilities constructed, operated and maintained by the State.

(ii) Claims of damage of any nature whatsoever, including but not limited to property loss or damage, personal injury or death arising out of or connected with the control, carriage, handling, use, disposal or distribution of any water outside of the facilities constructed, operated and maintained by the State.

(d) The use by the Agency or the State of any remedy specified herein for the enforcement of this contract is not exclusive and shall not deprive either from using any other remedy provided by law.

13. Comparable Treatment. In the event that the State gives on the whole substantially more favorable treatment to any other Delta entity under similar circumstances than that accorded under this contract to the Agency, the State agrees to renegotiate this contract to provide comparable treatment to the Agency under this contract.

GENERAL PROVISIONS

14. Amendments. This contract may be amended or terminated at any time by mutual agreement of the State and the Agency.

15. Reservation With Respect to State Laws. Nothing herein contained shall be construed as estopping or otherwise preventing the Agency, or any person, firm, association, corporation, or public body claiming by, through, or under the Agency, from contesting by litigation or other lawful means, the validity, constitutionality, construction or application of any law of the State of California.

16. Opinions and Determinations. Where the terms of this contract provide for action to be based upon the opinion, judgment, approval, review, or determination of either party hereto, such terms are not intended to be and shall never be construed as permitting such opinion, judgment, approval, review, or determination to be arbitrary, capricious, or unreasonable.

17. Successors and Assigns Obligated. This contract and all of its provisions shall apply to and bind the successors and assigns of the parties hereto.

18. Assignment and Subcontract. The Agency may enter into subcontracts with water users within the Agency boundaries in which the assurances and obligations provided in this contract as

to such water user or users are assigned to the area covered by the subcontract. The Agency shall remain primarily liable and shall make all payments required under this contract. No assignment or transfer of this contract, or any part hereof, rights hereunder, or interest herein by the Agency, other than a subcontract containing the same terms and conditions, shall be valid unless and until it is approved by the State and made subject to such reasonable terms and conditions as the State may impose. No assignment or transfer of this contract or any part hereof, rights hereunder, or interest herein by the State shall be valid except as such assignment or transfer is made pursuant to and in conformity with applicable law.

19. Books, Records, Reports, and Inspections Thereof. Subject to applicable State laws and regulations, the Agency shall have full and free access at all reasonable times to the SWP account books and official records of the State insofar as the same pertain to the matters and things provided for in this contract, with the right at any time during office hours to make copies thereof, and the proper representatives of the State shall have similar rights with respect to the account books and records of the Agency.

20. Waiver of Rights. Any waiver at any time by either party hereto of its rights with respect to a default, or any other matter arising in connection with this contract, shall not be deemed to be a waiver with respect to any other default or matter.

21. Assurance Relating to Validity of Contract. This contract shall be effective after its execution by the Agency and the State. Promptly after the execution and delivery of this contract, the Agency shall file and prosecute to a final decree, including any appeal therefrom to the highest court of the State of California, in a court of competent jurisdiction a special proceeding for the judicial examination, approval, and confirmation of the proceedings of the Agency's Board of Directors and of the Agency leading up to and including the making of this contract and the validity of the provisions thereof as a binding and enforceable obligation upon the State and the Agency. If, in this proceeding or other proceeding before a court of competent jurisdiction, any portion of this contract should be determined to be constitutionally invalid, then the remaining portions of this contract shall remain in full force and effect unless modified by mutual consent of the parties.

22. Notices. All notices that are required either expressly or by implication to be given by one party to the other shall be deemed to have been given if delivered personally or if enclosed in a properly addressed, postage prepaid, envelope and deposited in a United States Post Office. Unless or until formally notified otherwise, the Agency shall address all notices to the State as follows:

Director, Department of Water Resources
P.O. Box 388
Sacramento, California 95802

and the State shall address all notices to the Agency as follows:

North Delta Water Agency
921 - 11th St., Rm. 703
Sacramento, California 95814

IN WITNESS WHEREOF, the parties hereto have executed this contract on the date first above written.

Approved as to legal form and sufficiency: STATE OF CALIFORNIA

By /s/ P. A. TOWNER
Chief Counsel
Dept. of Water Resources

By /s/ RONALD B. ROBIE
Dept. of Water Resources

Approved as to legal form and sufficiency:

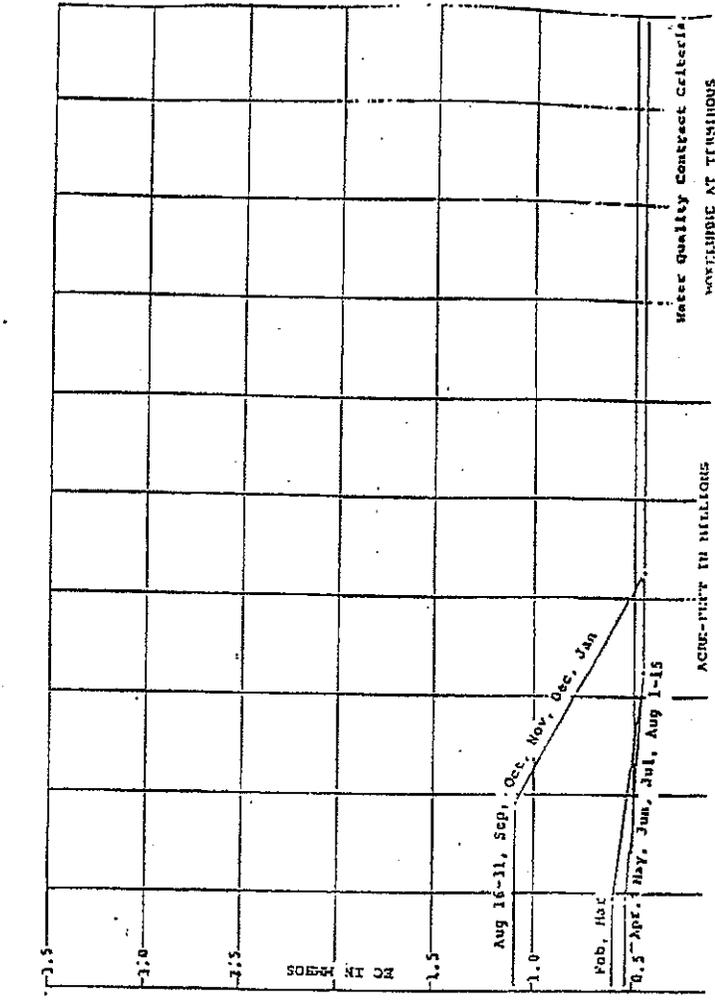
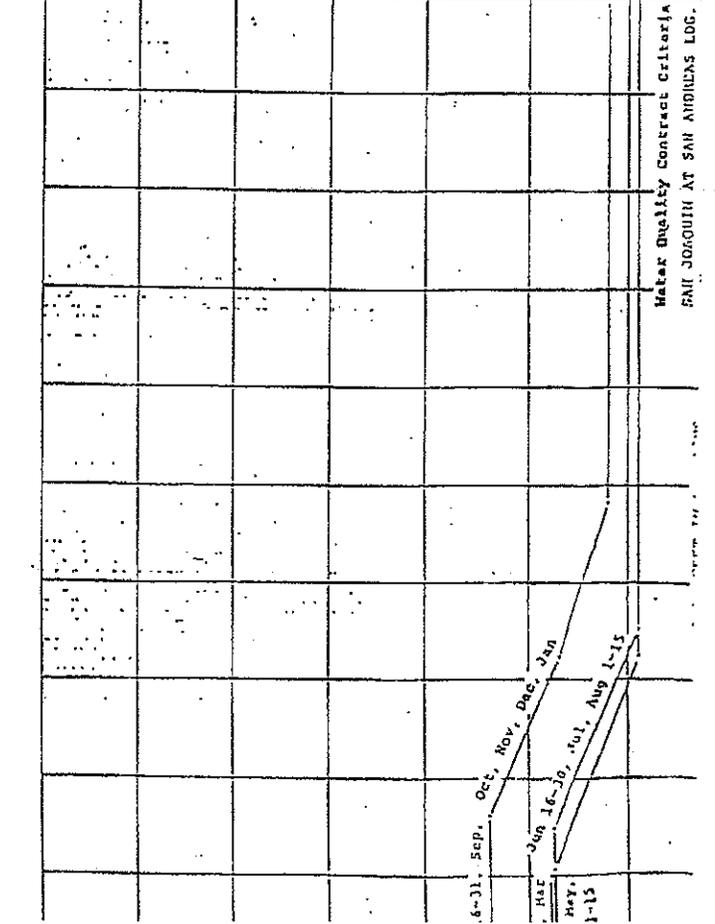
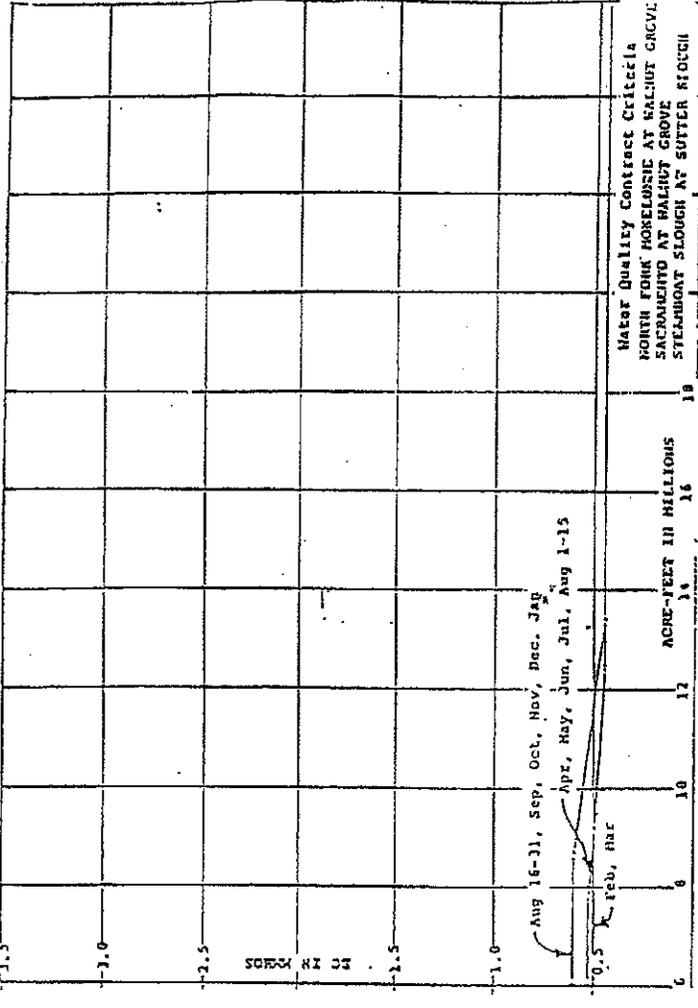
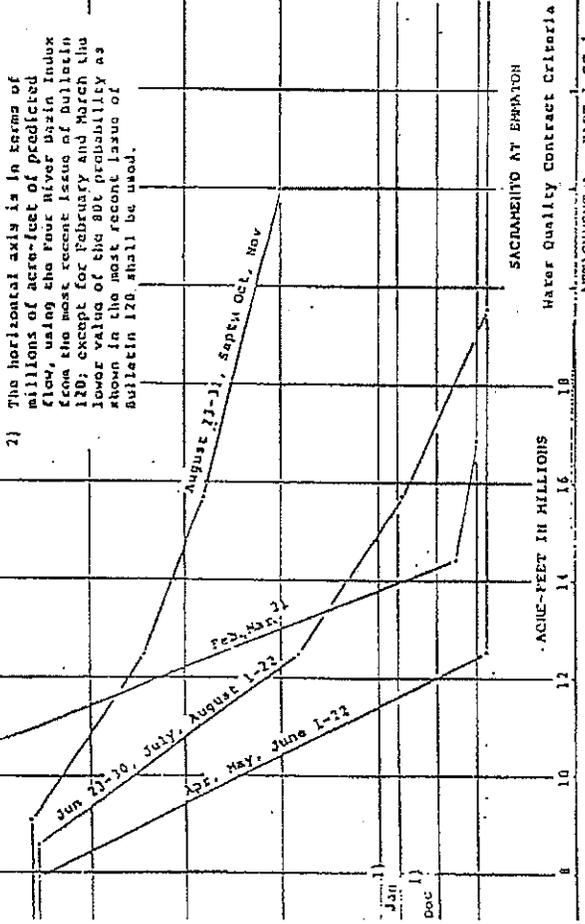
NORTH DELTA WATER AGENCY

By /s/ GEORGE BASTE
General Counsel
North Delta Water Agency

By /s/ W. R. DARSIE
Chairman
Board of Directors

1) If SPP deliveries are less than full entitlement in the forthcoming year, the criteria for December becomes equal to the period August 21 through November 1 and for January it becomes 1.6

2) The horizontal axis is in terms of millions of acre-feet of predicted flow, using the Four River Basin Index 120, except for February and March the lower value of the 801 probability as shown in the most recent issue of Bulletin 120 shall be used.



AGREEMENT

WHEREAS, The State of California, through its Department of Water Resources (DWR), and the North Delta Water Agency entered into a Contract for the Assurance of a Dependable Water Supply of Suitable Quality on January 28, 1981 under which, inter alia, the State agreed to operate the State Water Project to provide water qualities at least equal to the better of (1) standards adopted by the State Water Resources Control Board, or (2) criteria identified on the graphs included as Attachment A;

WHEREAS, Article 5 of the 1981 Contract permits a shift of Attachment A water quality criteria for the Sacramento River at Emmaton to a location on Three Mile Slough upon completion of an overland facility to supply and distribute water to Sherman Island;

WHEREAS, with the concurrence of landowners on Sherman Island and NDWA, DWR commenced a program of land acquisition on Sherman Island in lieu of building the overland facility described in Article 5;

WHEREAS, DWR presented plans to Reclamation District 341 for an overland facility to service lands remaining in private ownership and R.D. 341 approved the plans;

WHEREAS, DWR presented the same plans to NDWA; but prior to NDWA reaching a decision to approve or disapprove the plans, DWR

reached agreement in principle with the remaining landowners to purchase their lands on Sherman Island, making an overland facility unnecessary;

WHEREAS, DWR and NDWA wish to amend the 1981 Contract to change the monitoring station at Emmaton to Three Mile Slough for the reason that DWR is pursuing its land acquisition program in lieu of the overland facility;

WHEREAS, the parties disagree on whether DWR should pay assessments on land it owns within NDWA's jurisdiction, and wish to resolve the issue herein;

IT IS HEREBY AGREED:

The State of California acting by and through its Department of Water Resources, hereinafter "State," and the North Delta Water Agency, hereinafter "NDWA," agree to amend the 1981 Contract Between State of California Department of Water Resources and North Delta Water Agency for the Assurance of a Dependable Water Supply of Suitable Quality ("the 1981 Contract") as follows:

1. Subject to the terms and conditions set forth in this agreement, NDWA approves the State's plans for acquisition of agricultural lands on Sherman Island and agrees that such acquisition is in lieu of the overland facility described in Article 5 of the 1981 Contract.

2. NDWA agrees that the water quality criteria for the Sacramento River at Emmaton shall apply at the monitoring station at Three Mile Slough, as shown on Exhibit A, attached hereto and incorporated herein by reference.

3. State agrees that NDWA's approval in paragraph 1 is contingent, and paragraph 2 shall only be effective, upon State's acquiring fee title to, or a water quality easement or similar waiver on, those agricultural lands on Sherman Island which are specified in the draft report entitled "Overland Agricultural Facilities Sherman Island" dated January 1980. The parties agree that the 1981 Contract imposes no obligation relating to the quality of water for domestic uses on Sherman Island.

4. State agrees to hold harmless from all costs, defend and indemnify NDWA for any claim or action brought by any person or entity based on this agreement, including any claim or action based on the change in water quality criteria for the Sacramento River under the 1981 Contract.

5. State agrees to reimburse NDWA for engineering costs paid for review of the plans for the overland facility, based on invoices received for work performed between May 12, 1995 and July 3, 1996, inclusive.

6. State agrees that NDWA may permanently reduce its annual payments due under Article 10 of the 1981 Contract by a percentage equal to the percentage of acreage of land owned or

hereafter acquired by the Department of Water Resources within NDWA's jurisdiction compared to all lands within NDWA's jurisdiction. NDWA agrees not to assess or assert any right to assess DWR-owned lands. In all other respects, payment obligations imposed by the 1981 Contract shall remain the same.

7. The term of this agreement is concurrent with that of the 1981 Contract.

8. This agreement shall be effective immediately after it is both signed by DWR and approved by the NDWA Board of Directors. NDWA agrees to deliver to DWR a copy of the resolution authorizing NDWA to enter into this agreement.

9. NDWA shall promptly notice a hearing on this amendment pursuant to California Water Code Appendix section 115-7.8 and hold a hearing pursuant to Water Code Appendix section 155-7.6. If a substantial written protest is received, NDWA shall promptly hold an election on this amendment pursuant to Water Code appendix section 115-7.6. If an election is held and the majority of the votes cast do not approve this amendment, the term of the agreement (as defined in paragraph 8), shall be changed to a one-year term as an interim agreement pursuant to Water Code Appendix section 115-7.1, and all other terms of this agreement shall remain valid for the one-year interim period.

10. Promptly after the execution and delivery of this contract, NDWA shall file and prosecute to a final decree,

including any appeal therefrom to the highest court of the State of California, in a court of competent jurisdiction a special proceeding for the judicial examination, approval, and confirmation of the proceedings of the NDWA Board of Directors and of NDWA leading up to and including the making of this contract and the validity of the provisions thereof as a binding and enforceable obligation upon the State and the NDWA. If, in this proceeding or other proceeding before a court of competent jurisdiction, any portion of this contract should be determined to be invalid, then the remaining portions of this contract shall remain in full force and effect unless modified by mutual consent of the parties.

NORTH DELTA WATER AGENCY


W.R. Darsie, Chairman
Board of Directors

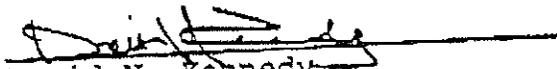
Dated: 12-24-96

Approved as to legal form and sufficiency:


Steve Saxton
Attorney for North Delta
Water Agency

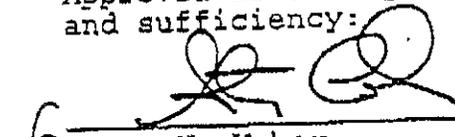
Dated: 12/27/96

STATE OF CALIFORNIA,
DEPARTMENT OF WATER RESOURCES


David N. Kennedy
Director

Dated: 1-21-97

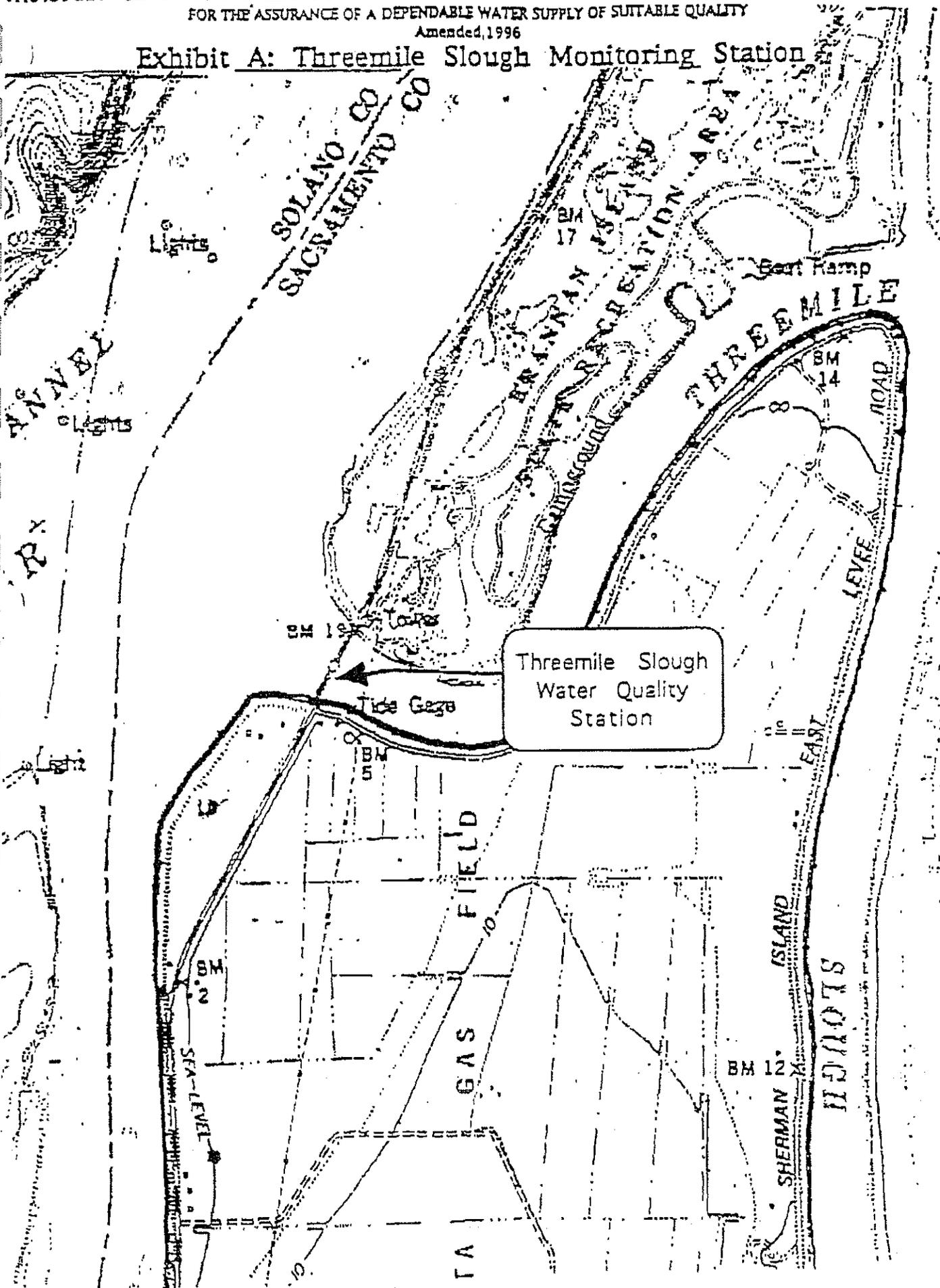
Approved as to legal form and sufficiency:


Susan N. Weber
Chief Counsel

Dated: 1/17/97

Amended, 1996

Exhibit A: Threemile Slough Monitoring Station



MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding is entered into this 26th day of May, 1998, by and between North Delta Water Agency (hereinafter "Agency") and Department of Water Resources, State of California (hereinafter "DWR").

RECITALS

A. In 1981, DWR entered into a contract (hereinafter "1981 Contract") with Agency under which Agency agreed to make certain payments to DWR in exchange for DWR making water of a specified quality and adequate quantity available for the use of diverters within the boundaries of Agency. The 1981 Contract remains in full force and effect.

B. The State Water Resources Control Board ("State Board") has initiated a water right proceeding in order to allocate the obligation to implement water quality objectives contained in the Bay-Delta Water Quality Control Plan adopted by the State Board on May 22, 1995 (hereinafter "1995 Plan").

C. The purpose of this Memorandum of Understanding is to set forth the joint position of Agency and DWR as to the legal effect of the 1981 Contract with respect to the obligation of water users within Agency, if any, to implement water quality objectives contained in the 1995 Plan.

UNDERSTANDINGS

1. DWR agrees that any obligation to curtail or modify diversions in order to assist in achieving any flow or salinity objective of the 1995 Plan imposed upon the use of water within Agency is entirely in the scope of the existing obligation of DWR under the 1981 Contract to provide water from the State Water Project supply, subject to the

limitations of reasonable and beneficial use. During the term of this Memorandum of Understanding, no party shall assert, before the State Board or in any court, that any other party must reduce or eliminate any of its direct diversions, diversions to storage or re-diversion of stored water, or release any previously stored water so long as the other party's method of use and method of diversion are reasonable under Article X, Section 2 of the California Constitution.

2. The parties agree that the payments made by Agency to DWR pursuant to the 1981 Contract constitute full and adequate consideration for the obligation of DWR described in paragraph 1 of this Memorandum of Understanding.

3. The parties agree that the assurances contained in the 1981 Contract, including the obligation of DWR to provide water to Agency users from State Water Project supplies, and in paragraph 1 of this Memorandum of Understanding, do not apply to any transfer of water outside Agency. The parties agree that the 1981 Contract does not affect any underlying rights the water users within the Agency may have to transfer water to the extent that such a transfer would be permissible under California law in the absence of the 1981 Contract.

4. Nothing in this Memorandum of Understanding constitutes an admission by Agency, express or implied, that the State Board has authority to limit or otherwise modify any right to divert water for use within Agency.

5. Nothing in this Memorandum of Understanding constitutes an amendment of the 1981 Contract as it presently exists.

6. This Memorandum of Understanding shall be effective only for the purposes of the currently pending SWRCB water right hearings to allocate the obligation to implement the 1995 Plan's water quality objectives, and for no other purpose.

THE NORTH DELTA WATER AGENCY

By: Dennis Leary

Date: 4/20/98

Title: Chairman

COUNSEL:

Clay Payne

THE DEPARTMENT OF WATER RESOURCES

By: [Signature]

Title: Director

Date: 5/26/98

APPROVED FOR LEGAL FORM

& SUFFICIENCY:

Susan N. Weber
Chief Counsel

**AGREEMENT BETWEEN
CITY OF WEST SACRAMENTO
and
DUNNIGAN WATER DISTRICT
for the
PURCHASE, SALE and TRANSFER of WATER**

This Agreement sets forth the terms for an annual transfer of water by and between the City of West Sacramento (hereinafter "City"), a municipal corporation of the state of California and Dunnigan Water District (hereinafter "Dunnigan"), a public agency of the state of California. The City and District are hereafter collectively referred to as "Parties."

RECITALS

- A. The City has an entitlement to water from the federal Central Valley Project ("CVP") under Contract No. 0-07-20-W0187 ("the CVP Project Supply");
- B. Dunnigan has an entitlement to water from the CVP under Contract No. 14-06-200-399 LTR 1;
- C. The City and Dunnigan are both located within the area of origin of CVP water as that term is defined under California law and used in section 3405(a)(1)(M) of the Central Valley Project Improvement Act (CVPIA), Title 34 of Public Law 102-575;
- D. The United States Bureau of Reclamation ("Reclamation") makes allocations of CVP Project Supply to its contractors each year, including to the City ("City's Allocation");
- E. The City desires to sell and Dunnigan desires to purchase at least 1,000 acre feet of the City's Allocation for delivery each year beginning in 2011 and continuing for four (4) years;
- F. This MOU sets forth the terms and conditions for the delivery of a portion of the City's Allocation; and
- G. The delivery of the portion of the City's Allocation to be transferred under this Agreement is consistent with the authorized place of use and purpose of use of the CVP Project Supply as established by the California State Water Resources Control Board in the water right permits held by the United States for the CVP.

NOW, THEREFORE, the Parties hereby agree to the terms and conditions of the sale, purchase and transfer of a portion of the City's Allocation as follows:

1. Recitals Incorporated.

The foregoing recitals shall be incorporated as material provisions this Agreement ("Agreement") and made a part thereof for all purposes

2. Term.

This Agreement shall be effective as of the last date of execution by either Party, and shall be in effect for a term ending February 28, 2015. Neither party shall have any right of renewal or right to enter into any extension of the Agreement beyond April 15, 2015. The Parties agree to work in good faith to renew the Agreement in the context of environmental regulatory conditions. Water purchased under this Agreement shall not be delivered to Dunnigan after the date of termination.

3. Time is of the Essence.

Time is of the essence in the performance of each and every term of the Agreement.

a. Quantity of Water.

Subject to the execution of the Agreement, consent of Reclamation, and subject to paragraph 4 hereof, in each year that the Agreement is in effect, the City shall sell and Dunnigan shall purchase at least 1,000 acre-feet of the City's Allocation of CVP Project Supply ("Transfer Water").

b. City shall make available to Dunnigan additional amounts of City's Allocation as follows:

- i. By February 1 of each year, the City shall notify Dunnigan of the amount of additional quantities of Transfer Water ("Additional Transfer Water") available for purchase from the City for that year.
- ii. By April 1 of each year, Dunnigan will notify City of the amount of Additional Transfer Water it elects to purchase from the City for that year. Such notification will create a binding obligation on Dunnigan to pay for the Additional Transfer Water it elects to purchase.

4. Guarantee of Availability.

City guarantees the availability of Transfer Water unless the City's Allocation is less than 2,500 acre-feet in any given year that this Agreement is in effect, in which situation the City guarantees delivery to Dunnigan of all City Allocation in excess of 1,500 acre-feet.

5. Point of Delivery.

The point of delivery of Transfer Water under the Agreement shall be Shasta Reservoir.

6. Delivery of Water.

City shall have no responsibility for conveyance or delivery of Transfer Water under the

Agreement. Dunnigan shall be wholly responsible to make any and all arrangements with Reclamation necessary for the conveyance and timing of delivery of the Transfer Water from Shasta Reservoir to the District's diversion at the Tehama-Colusa Canal.

7. Water Quality.

City makes no representation or assurance of the quality of Transfer Water for any purpose, and Dunnigan agrees to accept delivery of and use the Transfer Water at its own risk.

8. Payment for Water.

Dunnigan will pay City for the Transfer Water and Additional Transfer Water as follows:

- a. On April 1 of each year in which the Agreement is in effect, Dunnigan shall reimburse the City an amount equal to the CVP water costs imposed by Reclamation on the City for each acre-foot of CVP Project Supply made available to the City, multiplied by the amount of Transfer Water and Additional Transfer Water being made available to Dunnigan by the City in that year.
- b. On May 1 of each year, Dunnigan will make a payment to the City equal to the sum of amounts determined under subparagraphs (i) and (ii) below:
 - i. If the Transfer Water and the Additional Transfer Water that the City will make available totals 3,000 acre-feet or more, Dunnigan will pay Twelve thousand five hundred dollars (\$12,500), whether or not Dunnigan elects to take the entire total water supply. If the Transfer Water and Additional Transfer Water totals less than 3,000 acre-feet, the \$12,500 sum will be reduced pro-rata, in accordance with the amount of the total water supply that Dunnigan elects to take; and
 - ii. A premium for all Transfer Water and Additional Transfer Water based on Dunnigan's mid-April CVP Project Supply Allocation ("Dunnigan's Allocation") announced by Reclamation, calculated as follows:
 1. If Dunnigan's Allocation is greater than 80%, the premium will be \$50 per acre-foot of all water purchased under the Agreement;
 2. If Dunnigan's Allocation is less than or equal to 80%, but greater than 50%, the premium will be \$62 per acre-foot of water purchased under the Agreement; and
 3. If Dunnigan's Allocation is less than 50%, the premium will be \$75 per acre-foot of water purchased under the Agreement.
- c. In addition to the payments set forth in paragraph 8(a) and 8(b) above, Dunnigan shall pay City the amount of all charges for the Transfer Water and Additional Transfer Water that may be imposed on City by Reclamation, to the extent such

charges are in addition to the CVP contract water rate imposed by Reclamation on City, multiplied by the amount of water made available to Dunnigan under this Agreement. Such payment shall be due within thirty days of the date on which payment of such charges become due from City to Reclamation or thirty days from the date on which City notifies Dunnigan of the imposition of such charges, whichever occurs last.

- d. Payments under this paragraph 8 shall be due for the Transfer Water, and for any portion of the Additional Transfer Water that Dunnigan elects to purchase in its April 1 notice to the City, whether or not Dunnigan takes actual delivery of any portion of the Transfer Water or Additional Transfer Water.

9. Use of Transfer Water.

- a. Dunnigan shall not allow the use of Transfer Water or Additional Transfer Water in a manner that is unreasonable or inconsistent with Reclamation Law.
- b. Dunnigan shall not resell Transfer Water or Additional Transfer Water, and shall not sell or exchange any other water available to it, except to landowners within its jurisdictional boundaries.

10. Consent of Reclamation.

Upon execution of the Agreement by the last of the Parties to execute, Dunnigan shall submit a request to Reclamation for its written consent, together with a proposed schedule for delivery of the Transfer Water. This Agreement shall not be effective unless and until Reclamation provides written consent to the transfer of City's Allocation to Dunnigan as provided in this Agreement.

11. Water Rights Not Affected

No transfer of water pursuant to the Agreement shall confer on any third person or entity any appropriative, public trust or other right to water. Nothing in the Agreement shall operate as a forfeiture, diminution or impairment of any rights of the City to its full deliveries of CVP Water Supply after the expiration of the term of the Agreement, and shall in no way prejudice the City's rights thereto. Consistent with the provisions of California Water Code sections 109, 475, 1011, 1244 and 11961, the Parties agree that no transfer under the Agreement, nor the Agreement itself, is to be considered evidence of the City's lack of need for or beneficial use of water in the amount of the Transfer Water or Additional Transfer Water.

12. Indemnity.

Each Party shall agree to protect, defend, indemnify, and hold harmless the other Party, its directors, officers, agents, employees and consultants from and against any and all third-party losses, claims, liens, demands and causes of action of very kind and character

connected with or arising directly or indirectly out of the performance or non-performance by the indemnifying party hereunder of the Agreement.

13. General Provisions.

- a. *Authority.* Each signatory of the Agreement shall represent that s/he is authorized to execute the Agreement on behalf of the Party for which s/he signs. Each Party shall represent that it has legal authority to enter into this Agreement and to perform all obligations under the Agreement.
- b. *Amendment.* The Agreement may be amended or modified only by written instrument executed by each of the Parties to the Agreement.
- c. *Jurisdiction and Venue.* The Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflict of law rules. A suit, action or proceeding brought under the scope of the Agreement shall be brought and maintained to the extent allowed by law in the County of Yolo.
- d. *Headings.* The paragraph headings used in the Agreement are intended for convenience only and shall not be used in interpreting the Agreement or in determining any of the rights or obligations of the Parties to the Agreement.
- e. *Construction and Interpretation.* The Agreement is the result of negotiations and each Party has had a full and fair opportunity to revise the terms. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of the Agreement.
- f. *Entire Agreement.* This Agreement will constitute the entire Agreement of the Parties with respect to the subject matter of the Agreement and supersede any prior oral or written agreement, understanding, or representation relating to the subject matter of the Agreement.
- g. *Partial Invalidity.* If after the date of execution of the Agreement, any provision of the Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of the Agreement, such provision shall be fully severable. However in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and be legal, valid and enforceable.
- h. *Successors and Assigns.* The Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to the Agreement. No Party may assign its interests in or obligations under the Agreement without the written consent of the other Party, which consent shall not be unreasonably withheld or delayed.

- i. *Waivers.* Waiver of any breach or default shall not constitute a continuing waiver or a waiver or any subsequent breach either of the same or of another provision of the Agreement and forbearance to enforce one or more of the remedies provided in the Agreement shall not be deemed to be a waiver of that remedy.
- j. *Attorney's fees and Costs.* The prevailing Party in any litigation or other action to enforce or interpret the Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.
- k. *Necessary Actions.* Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of the Agreement.
- l. *Compliance with Law.* In performing their respective obligations under the Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.
- m. *Third Party Beneficiaries.* The Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.
- n. *Counterparts.* The Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.
- o. *Notice.* Any notice, request, tender, demand, deliver, approval or other communication provided for, required or arising under this Agreement shall be in writing and shall be deemed delivered upon personal service or three business days after deposit in the United States mail, certified or with return receipt requested, addressed to the Party as follows, or such other address as a Party may by notice under this Paragraph 15(o) designate:

To: City:	To: Dunnigan
-----------	--------------

The Parties, by the signature of their authorized representatives, hereby agree to the principles set forth in this Agreement.

Date: _____

Date: _____

City of West Sacramento

Dunnigan Water District

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Attest:

Attest:

City Clerk

Secretary to the Board

Approved as to Form:

Approved as to Form:

City Attorney

District Counsel

**AGREEMENT BETWEEN
CITY OF WEST SACRAMENTO
and
DUNNIGAN WATER DISTRICT
for the
PURCHASE, SALE and TRANSFER of WATER**

This Agreement sets forth the terms for an annual transfer of water by and between the City of West Sacramento (hereinafter "City"), a municipal corporation of the state of California and Dunnigan Water District (hereinafter "Dunnigan"), a public agency of the state of California. The City and District are hereafter collectively referred to as "Parties."

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- D. The United States Bureau of Reclamation ("Reclamation") makes allocations of CVP Project Supply to its contractors each year, including to the City ("City's Allocation");
- E. The City desires to sell and Dunnigan desires to purchase at least 1,000 acre feet of the City's Allocation for delivery each year beginning in 2011 and continuing for four (4) years;
- F. This MOU sets forth the terms and conditions for the delivery of a portion of the City's Allocation; and
- G. The delivery of the portion of the City's Allocation to be transferred under this Agreement is consistent with the authorized place of use and purpose of use of the CVP Project Supply as established by the California State Water Resources Control Board in the water right permits held by the United States for the CVP.

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The foregoing recitals shall be incorporated as material provisions this Agreement ("Agreement") and made a part thereof for all purposes

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This Agreement shall be effective as of the last date of execution by either Party, and shall be in effect for a term ending February 28, 2015. Neither party shall have any right of renewal or right to enter into any extension of the Agreement beyond April 15, 2015. The Parties agree to work in good faith to renew the Agreement in the context of environmental regulatory conditions. Water purchased under this Agreement shall not be delivered to Dunnigan after the date of termination.

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Dunnigan will pay City for the Transfer Water and Additional Transfer Water as follows:

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- c. In addition to the payments set forth in paragraph 8(a) and 8(b) above, Dunnigan shall pay City the amount of all charges for the Transfer Water and Additional Transfer Water that may be imposed on City by Reclamation, to the extent such charges are in addition to the CVP contract water rate imposed by Reclamation on City, multiplied by the amount of water made available to Dunnigan under this Agreement. Such payment shall be due within thirty days of the date on which payment of such charges become due from City to Reclamation or thirty days from the date on which City notifies Dunnigan of the imposition of such charges, whichever occurs last.
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- a. Dunnigan shall not allow the use of Transfer Water or Additional Transfer Water in a manner that is unreasonable or inconsistent with Reclamation Law.
- b. Dunnigan shall not resell Transfer Water or Additional Transfer Water, and shall not sell or exchange any other water available to it, except to landowners within its jurisdictional boundaries.

10. Consent of Reclamation.

Upon execution of the Agreement by the last of the Parties to execute, Dunnigan shall submit a request to Reclamation for its written consent, together with a proposed schedule for delivery of the Transfer Water. This Agreement shall not be effective unless and until Reclamation provides written consent to the transfer of City's Allocation to Dunnigan as provided in this Agreement.

11. Water Rights Not Affected

No transfer of water pursuant to the Agreement shall confer on any third person or entity any appropriative, public trust or other right to water. Nothing in the Agreement shall operate as a forfeiture, diminution or impairment of any rights of the City to its full deliveries of CVP Water Supply after the expiration of the term of the Agreement, and shall in no way prejudice the City's rights thereto. Consistent with the provisions of California Water Code sections 109, 475, 1011, 1244 and 11961, the Parties agree that no transfer under the Agreement, nor the Agreement itself, is to be considered evidence of the City's lack of need for or beneficial use of water in the amount of the Transfer Water or Additional Transfer Water.

12. Indemnity.

Each Party shall agree to protect, defend, indemnify, and hold harmless the other Party, its directors, officers, agents, employees and consultants from and against any and all third-party losses, claims, liens, demands and causes of action of very kind and character connected with or arising directly or indirectly out of the performance or non-performance by the indemnifying party hereunder of the Agreement.

13. General Provisions.

- a. *Authority.* Each signatory of the Agreement shall represent that s/he is authorized to execute the Agreement on behalf of the Party for which s/he signs. Each Party shall represent that it has legal authority to enter into this Agreement and to perform all obligations under the Agreement.
- b. *Amendment.* The Agreement may be amended or modified only by written instrument executed by each of the Parties to the Agreement.
- c. *Jurisdiction and Venue.* The Agreement shall be governed by and construed in accordance with the laws of the State of California, except for its conflict of law rules. A suit, action or proceeding brought under the scope of the Agreement shall be brought and maintained to the extent allowed by law in the County of Yolo.
- d. *Headings.* The paragraph headings used in the Agreement are intended for convenience only and shall not be used in interpreting the Agreement or in determining any of the rights or obligations of the Parties to the Agreement.
- e. *Construction and Interpretation.* The Agreement is the result of negotiations and each Party has had a full and fair opportunity to revise the terms. As a result, the normal rule of construction that any ambiguities are to be resolved against the drafting Party shall not apply in the construction or interpretation of the Agreement.
- f. *Entire Agreement.* This Agreement will constitute the entire Agreement of the Parties with respect to the subject matter of the Agreement and supersede any prior oral or written agreement, understanding, or representation relating to the subject matter of the Agreement.
- g. *Partial Invalidity.* If after the date of execution of the Agreement, any provision of the Agreement is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of the Agreement, such provision shall be fully severable. However in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid, or unenforceable provision as may be possible and be legal, valid and enforceable.
- h. *Successors and Assigns.* The Agreement shall be binding on and inure to the benefit of the successors and assigns of the respective Parties to the Agreement.

No Party may assign its interests in or obligations under the Agreement without the written consent of the other Party, which consent shall not be unreasonably withheld or delayed.

- i. *Waivers.* Waiver of any breach or default shall not constitute a continuing waiver or a waiver or any subsequent breach either of the same or of another provision of the Agreement and forbearance to enforce one or more of the remedies provided in the Agreement shall not be deemed to be a waiver of that remedy.
- j. *Attorney's fees and Costs.* The prevailing Party in any litigation or other action to enforce or interpret the Agreement shall be entitled to reasonable attorneys' fees, expert witnesses' fees, costs of suit, and other and necessary disbursements in addition to any other relief deemed appropriate by a court of competent jurisdiction.
- k. *Necessary Actions.* Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of the Agreement.
- l. *Compliance with Law.* In performing their respective obligations under the Agreement, the Parties shall comply with and conform to all applicable laws, rules, regulations and ordinances.
- m. *Third Party Beneficiaries.* The Agreement shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.
- n. *Counterparts.* The Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.
- o. *Notice.* Any notice, request, tender, demand, deliver, approval or other communication provided for, required or arising under this Agreement shall be in writing and shall be deemed delivered upon personal service or three business days after deposit in the United States mail, certified or with return receipt requested, addressed to the Party as follows, or such other address as a Party may by notice under this Paragraph 15(o) designate:

To: City:	To: Dunnigan Water District
-----------	-----------------------------

The Parties, by the signature of their authorized representatives, hereby agree to the principles set forth in this Agreement.

Date: _____

Date: _____

City of West Sacramento

Dunnigan Water District

By: _____

By: _____

Name: _____

Name: _____

Title: _____

Title: _____

Attest:

Attest:

City Clerk

Secretary to the Board

Approved as to Form:

Approved as to Form:

City Attorney

District Counsel

EMERGENCY/DISASTER RESPONSE PLAN

City of West Sacramento
Public Works-Water Treatment Division
Emergency/Disaster Response Plan

1) INTRODUCTION

To continue minimum service levels and mitigate the public health risks from drinking water contamination that may occur during a disaster or other emergency events and in order to provide reliable water service and minimize public health risks from unsafe drinking water during those events, the City of West Sacramento proposes the following plan that defines how it will respond to emergencies and/or disasters that are likely to affect its water system operation.

Disasters emergencies and threats that are likely to occur in the water system's service area that are addressed in this plan are: earthquake, major fire emergencies, water outages due to loss of power, localized flooding, water contamination, and acts of sabotage. The City of West Sacramento's 2004 Water System Vulnerability Assessment Report included the above items as potential problems to the continuous operation of the water treatment and distribution system.

2) SYSTEM DESCRIPTION

The City of West Sacramento, population 38,000, is located in the Sacramento Valley in Yolo County, approximately 1 mile west of the City of Sacramento. The city provides potable water service to a population of 38,000 and approximately 10,000 residential and commercial connections.

The West Sacramento water system is supplied by surface water from the Sacramento River. The primary facilities of the system include a river intake structure, the Bryte Bend Water Treatment Plant, and six remote storage and pumping facilities.

3) SIGNIFICANT SYSTEM COMPONENTS

1. Sacramento river intake structure
2. Two, 42" raw water pipelines to the plant.
3. Bryte Bend Water Treatment Plant
4. Two, 2-million gallon concrete clearwells.
5. One 54" potable water transmission main leaving the treatment plant.
6. 3 million gallon Carlin water storage tank and 12 million gallon per day pump station.
7. Northeast, Central, Southport, PSIP, Oak Street water storage tanks and remote pumping stations.

4) DESIGNATED RESPONSIBLE PERSONNEL

<i>Name</i>	<i>Telephone No. (Work)</i>	<i>Role</i>
<i>Title</i>	<i>Telephone No. (Home)</i>	
Water Plant Shift Operator	(916) 617-4860	Initial contact at plant, in charge for all emergencies until replaced by Water Services Superintendent
Various		
Dan Mount	(916) 617-4862	In charge of all water treatment emergencies
Water Services Superintendent	(916) 719-7128	
Jim Elrod	(916) 617-4850	In charge of all water distribution system emergencies
Utilities Superintendent	(916) 369-7576 Cellular (916) 799-4693	
Vacant	(916) 617-4850	In charge of Emergency Operations Center
Public Works Director	(530) 758-7381	
Greg Fabun	(916) 617-4850	In charge of resources and media relations
Acting Director of Public Works	(916) 207-9494	
Jose Alarcon	(916) 449-5666	Department of Health Services District Engineer (state)
Associate Sanitary Engineer California Department of Health Services	(916) 300-9673	
Wayne Taniguchi	(530) 666-8646	Department of Health Services (County)
Yolo County Environmental Health Officer		

5) INVENTORY OF RESOURCES

The following is an inventory of system resources that are used for normal operations and available for emergencies; this includes maps and schematic diagrams of the water system, lists of emergency equipment, equipment suppliers, and emergency contract agreements that are kept at the Bryte Bend Water Treatment Plant and Public Works Building offices.

- A. List of equipment on hand for emergency repairs
1. Mobile generators (4) 225, 275, 350, and 20 KW
 2. Trash Pumps (2) – 4 and 6 inch
 3. Vactor Truck (2)
 4. Backhoe (2)
 5. Dump Trucks (3)

- 6. Sweeper Trucks (2)

- B. List of sources of needed equipment, not on hand
 - 1. Equipment Rentals – Nations Rental (916) 924-0484
 - 2. Mobile Generators and Trash Pumps - Paco Pumps (916) 374-9511
 - 3. Fuel – Ramos Oil (916) 371-2570
 - 4. Liquid Chlorine – Sierra Chemical (916) 371-5943

- C. List of distributors or suppliers of replacement parts for critical water system components
 - 1. Aluminum Sulfate (Coagulant) – LA Chemical (323) 832-5000
 - 2. Gas Chlorine (Disinfectant) – Sierra Chemical (702) 358-0987
 - 3. Miscellaneous Piping – Camellia Valley Supply (916) 381-6100

6) EMERGENCY OPERATIONS CENTER

The Bryte Bend Water Treatment Plant Operations Building has been designated as the primary emergency operations center or EOC. The backup EOC is the Public Works Main Office. Emergency contact information for primary personnel is listed below. Telephone, radio and FAX will be the primary mode of communication in an emergency.

Agency	Address, City	Phone #	FAX #
Water System	Bryte Bend Water Treatment Plant 400 N.Harbor Blvd West Sacramento, CA	(916)617-4860	(916)373-9581
Fire Department	City of West Sacramento City Hall 1110 West Capital Ave, 1st Floor West Sacramento, CA	(916)617-4600	(916)371-5017
Law Enforcement	City of West Sacramento Police Headquarters 550 Jefferson Blvd West Sacramento, CA	(916)372-2461	(916)373-0517
Public Works	City of West Sacramento Public Works 1951 South River Road West Sacramento, CA	(916)617-4850	(916)371-1516

7) OTHER AGENCY COORDINATION:

Coordination procedures with governmental agencies for health and safety protection; technical, legal, and financial assistance, and public notification procedures are continually being developed and updated through regulation and experience and will be added as necessary to this plan.

8) RESPONSE PROCEDURES:

Personnel will, as quickly as possible, determine the status of other employees, assess damage to water system facilities, provide logistics for emergency repairs, monitor progress of repairs and restoration efforts, communicate with health officials and water users according to the "Emergency Notification Plan" on file with the Department of Health Services. (See Attachment)

Order of Response

- i. Operator on duty reports plant or distribution pumping problems to the Water Treatment Superintendent.
- ii. Superintendent notifies appropriate mechanical/electrical standby personnel.
- iii. If situation is critical, the Superintendent notifies the Public Works Director and calls in additional personnel as needed.
- iv. Public Works Director may open an EOC at water treatment plant or public works. Director obtains needed resources from appropriate City and County agencies.

9) RESUME NORMAL OPERATIONS

The following are the steps that will be taken to resume normal operations and to prepare and submit reports to appropriate agencies and will include identifying the nature of the emergency (e.g., earthquake-causing water outage/leaks, fire or power outage causing water shortage/outage, sabotage resulting in facility destruction or water contamination).

a. Leaks or service interruption (Result of earthquake, etc.)

- i. Isolate leak. Turn power or flow off, if necessary, to control leak.
- ii. Repair or isolate break to allow service to the maximum system population possible. Disinfect per AWWA Standards C653-99; increase system disinfectant residual as a precaution, until normal service is resumed.
- iii. Increase bacteriological sampling at leak site and up and downstream until 3 good consecutive samples are confirmed.

iv. Reestablish normal service.

b. Low pressure (Result of earthquake, fire, storm)

- i. Increase production from treatment plant or remote pumping facilities, if possible, to provide maximum system output.
- ii. Increase distribution system disinfectant residual as precaution against potential contamination.

c. Power outage (Result of storm, flood, earthquake)

- i. Ensure automatic emergency generators are on line to provide minimum water pressure to system. Place generators at remote pumping sites if needed.
- ii. Increase distribution disinfectant residual as precaution against potential contamination.

d. Contamination (Result of chemical spill, flooding, earthquake)

- i. Identify location and source of contamination.
- ii. If contamination is from Sacramento River, determine if contamination can be removed by treatment process or bypass source.
- iii. If contamination is an act of sabotage, take appropriate action based on nature of contamination. Immediately contact local law enforcement and regulatory agency (DHS). Actions should be taken in consultation with the regulatory agency and could include shutting off water until all contaminants are identified and removed. The water system area affected will remain off until negative samples are received.

e. Physical destruction of facility (Sabotage)

- i. Immediately contact local law enforcement and regulatory agency for consultation.
- ii. Isolate area if possible and maintain secure perimeter for evidence collection.
- iii. If outage is long-term, bottled water will be provided for residential use. Local distributors of bottled water could provide assistance with delivery.

All significant water outages (widespread and lasting more than eight hours) or disinfection failure will be reported to the Department of Health Services (DHS) District Office and Yolo County Health Department by telephone or equally rapid means. All emergencies will be documented along with action taken, and kept in the files at the Water Treatment Plant and Public Works Building. Acts of sabotage will be reported to the local law enforcement agency.

10) Additional Mutual Assistance or Emergency Resources

Agency/Department	Telephone No. (Day) Telephone No. (After Hours)
City of Sacramento Sac River Water Treatment Plant	(916) 264-7136
City of West Sacramento Fire Department 15 th Street Station House	(916) 375-6474 (916) 375-373-5808
City of West Sacramento Police Department	(916) 375-6474
Office of Emergency Services Warning Center	(800) 852-7550
Local FBI Office (terrorism or sabotage) (Also notify local law enforcement.)	(916) 481-9110
Sacramento City and County Emergency Operations Center	(916) 575-4501
PG&E Emergency Number On-call 24 hour response	(800) 743-5000 (916) 326-7597
EPA National Response Center	(800) 424-8802
California EPA	(916) 445-8802
RD 900	(916) 371-1483
FEMA	(415) 923-7100
Yolo County Flood Control	(530) 662-0265
Norcal Beverage	(916) 372-0600

Water system contact information:

Name: Dan Mount
Address: 400 North Harbor Blvd.
West Sacramento, CA 95605
Phone: (916) 617-4862
FAX: (916) 373-9581

**NO WASTE ORDINANCE AND CITY WATER
CONSERVATION CODE**

ORDINANCE NO. ____
AN ORDINANCE OF THE CITY COUNCIL
OF THE CITY OF WEST SACRAMENTO, CALIFORNIA,
AMENDING CHAPTER ____ OF THE WEST SACRAMENTO MUNICIPAL CODE
TO ADD SECTION ____ FOR WATER CONSERVATION IN
THE CITY OF WEST SACRAMENTO

The City Council of the City of West Sacramento does hereby resolve as follows:

The Municipal Code of the City of West Sacramento is hereby amended by adding a Section ____ to Chapter 13 to read as follows:

13.04. __ PROHIBITING WASTEFUL USE OF WATER

Regulations and Restrictions on Water Use

1. The following restrictions are effective immediately:

No Customer shall waste water. As used herein, the term "waste" means:

- a. Using potable water to irrigate grass, lawns, ground-cover, shrubbery, crops, and trees in such manner as to result in runoff for more than five (5) minutes.
- b. Allowing potable water to escape from breaks within the customer's plumbing system for more than 3 days (72 hours) after customer has been notified or discovers the break.
- c. Washing cars, boats, trailers, aircraft, or other vehicles by hose without a shutoff nozzle and bucket except at vehicle washing facilities using water recycling equipment.
- d. All ornamental fountains and ponds shall be equipped with a recirculating pump.

2. The following restrictions are effective during a declared Water Shortage Emergency.

- a. No restaurant, hotel, café, cafeteria or other public place where food is sold, served, or offered for sale, shall serve drinking water to any customer unless expressly requested.
- b. Potable water shall not be used to clean, fill, or maintain decorative fountains, lakes, or ponds unless such water reclaimed.
- c. Potable water shall not be used for construction, compaction, dust control, street or parking lot sweeping, or building washdown where non-potable or recycled water is available.
- d. Potable water shall not be used for sewer system maintenance or fire protection training without prior approval by the City Manager.

ADOPTED this ____ day of _____, 20 ____.

Mayor of the City of West Sacramento

City Clerk of the City of West Sacramento

Article IX. Water Conservation

13.04.750 Definitions.

As used in this article, the following terms shall have the specified meanings:

“Dwelling unit” means any structures intended for human habitation or use, either transient or permanent.

“Pressure reducing valve” means a valve device which regulates water pressure to structures and is designed to limit the pressure for use within that structure.

“Public use” means all commercial or industrial establishments, including restaurants, bars, public buildings, comfort stations, schools, gymnasias or other places to which the public has access or which are frequented by the public with or without special permission or invitation, and installations both free and pay where fixtures are installed so that the fixtures’ use is similarly unrestricted.

“Self-closing valve” means a valve device designed to close by spring or by water pressure when left unattended.

“Water saving aerator” means an aerator equipped to limit water flow to a maximum of three gallons per minute.

“Water saving toilet” means a tank type toilet or water closet designated to function with a maximum three-and-one-half gallons per flush. (District code Ch. 7 Art. I § 10.01)

13.04.760 Water waste.

No person shall cause or permit any water furnished to the person’s premises by the city to run to waste. The city may, pursuant to the requirements of Article X of this chapter, disconnect the city’s service to any premises and/or customer for the customer’s failure to comply with this section. The city may inspect or test meters in unmetered service to determine compliance. (District code Ch. 7 Art. I § 10.02)

13.04.770 Faulty fixtures.

It is unlawful for any person to maintain or allow on the person’s premises leaky or faulty water fixtures or devices to which city water is supplied, so that city water is wasted thereby. Failure to repair or disconnect such leaky or faulty devices within seven days after being notified in writing to do so by the city shall be sufficient cause for the city to disconnect its water service from such premises, pursuant to the requirements of Article X of this chapter, until the repairs have been made. (District code Ch. 7 Art. I § 10.03)

13.04.780 Conservation devices required—New dwelling units.

All new dwelling units connected to the city distribution system after the effective date of this chapter shall be equipped with city-approved water saving showerheads, water saving aerators on sinks and lavatories, water saving toilets and pressure reducing valves. (District code Ch. 7 Art. I § 10.04)

13.04.790 Conservation devices required—New public uses.

All new public uses connected to the city distribution system after the effective date of this chapter shall be equipped with city-approved water saving showerheads, water saving toilets, self-closing valves on lavatories, and pressure reducing valves. (District code Ch. 7 Art. I § 10.05)

13.04.800 Air conditioning and refrigeration devices.

All new or replacement systems using water from the city distribution system or discharging to the city sewer system, installed after the effective date of this chapter, shall be equipped with water conservation devices of sufficient capacity to limit makeup water to a maximum 0.2 gallons per minute per ton of rated capacity under full loading at a maximum summer temperature of one hundred five degrees Fahrenheit. (District code Ch. 7 Art. I § 10.06)

13.04.810 Evaporative coolers.

Evaporative coolers installed after the effective date of this chapter shall be equipped with a recirculating pump. The makeup supply line shall be equipped with an inlet valve which shall open only when makeup water is required. (District code Ch. 7 Art. I § 10.07)

13.04.820 Swimming and wading pools.

A. All swimming or wading pools installed after the effective date of this chapter, which have a capacity of over two thousand gallons of water, and which use water from the city distribution system or which discharge water into the city sewer system, shall be equipped with recirculating systems and approved filters.

B. Filling or discharging swimming or wading pools shall be limited to the hours between eight p.m. and seven a.m. (District code Ch. 7 Art. I § 10.08)

13.04.830 Irrigation and sprinkling.

No person shall use, or cause to be used, any city water for the purpose of irrigation or the sprinkling of lawns through an automatic sprinkler for a period exceeding thirty minutes in any valved section or through a hose for a period exceeding two and one-half hours during each day. (District code Ch. 7 Art. I § 10.09)

13.04.840 Charge for wasted water.

The amount of any water wasted in any manner prescribed by this chapter shall be estimated by the manager and charged for at the rates set by the city council. (District code Ch. 7 Art. I § 10.10)

13.04.850 Construction uses.

Water uses for dust control, curing, compacting, cleaning or other construction use may be subject to limitations and shall not interfere with other domestic uses. (District code Ch. 7 Art. I § 10.11)

WATER EFFICIENT LANDSCAPE ORDINANCE

City of West Sacramento Water Efficient Landscape Ordinance



Municipal Code of the City of West Sacramento

Title 13. Public Services
Chapter 13.04. Water Service System
Article XII. Water Efficient Landscaping

13.04.1090 Purpose.

The State Legislature has found:

1. that the waters of the state are of limited supply and are subject to ever increasing demands;
2. that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;
3. that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;
4. that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and
5. that landscape design, installation, maintenance and management can and should be water efficient; and
6. that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.

Consistent with these legislative findings, the purpose of this ordinance is to:

1. promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;
2. establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;
3. establish provisions for water management practices and water waste prevention for existing landscapes;
4. use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;
5. promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;

13.04.1100 Applicability

This ordinance shall apply to all of the following landscape projects:

1. new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;

2. new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with an aggregate landscape area equal to or greater than 2,500 square feet over the entire developed area, requiring a building or landscape permit, plan check, or design review;
3. new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;
4. existing landscapes limited to Sections 13.04.1180, and 13.04.1190; and
5. cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 13.04.1120.C, 13.04.1130.C, and 13.04.1180; and existing cemeteries are limited to Sections 13.04.1180, and 13.04.1190.

This ordinance does not apply to:

1. registered local, state or federal historical sites;
2. ecological restoration projects that do not require a permanent irrigation system;
3. mined-land reclamation projects that do not require a permanent irrigation system; or
4. plant collections, as part of botanical gardens and arboretums open to the public.

13.04.1110 Definitions.

The terms used in this ordinance have the meaning set forth below:

“applied water” means the portion of water supplied by the irrigation system to the landscape.

“automatic irrigation controller” means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.

“backflow prevention device” means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

“Certificate of Completion” means the document required under Section 13.04.1130.

“certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.

“certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor program.

- “check valve” or “anti-drain valve” means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
- “common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
- “conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year
- “drip irrigation” means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
- “ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
- “effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth. The usable rainfall value shall be estimated as 25% of the average annual rainfall. Average annual rainfall amounts shall be determined by the City of West Sacramento Parks Department, and based on a combination of data from the City’s weather stations, and regional California Irrigation Management Information Systems (CIMIS) data.
- “emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.
- “established landscape” means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
- “establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.
- “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 13.04.1120.C.
- “ET adjustment factor” (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.
- A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is $(0.7) = (0.5/0.71)$. ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.
- “evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time. See also “reference evapotranspiration”.
- “flow rate” means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

- “hardscapes” means any durable material (pervious and non-pervious).
- “homeowner-provided landscaping” means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
- “hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
- “infiltration rate” means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
- “invasive plant species” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. “Noxious weeds” means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
- “irrigation audit” means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
- “irrigation efficiency” (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
- “irrigation survey” means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
- “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.
- “landscape architect” means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
- “landscape area” means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).
- “landscape contractor” means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

“Landscape Documentation Package” means the documents required under Section 13.04.1120.

“landscape project” means total area of landscape in a project as defined in “landscape area” for the purposes of this ordinance, meeting requirements under Section 13.04.1100.

“lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

“local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.

“low volume irrigation” means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, bubblers, and multi-stream, multi-trajectory rotator sprinklers. Low volume irrigation systems are specifically designed to apply small volumes of water not to exceed 0.75 inches per hour precipitation rate.

“main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.

“Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 13.04.1120.C. It is based upon the area’s reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.

“microclimate” means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

“mined-land reclamation projects” means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

“mulch” means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

“new construction” means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

“operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

“overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).

“overspray” means the irrigation water which is delivered beyond the target area.

“permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

“pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.

“plant factor” or “plant water use factor” is a factor , when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication “Water Use Classification of Landscape Species”.

“precipitation rate” means the rate of application of water measured in inches per hour.

“project applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 13.04.1120, to request a permit, plan check, or design review from the City of West Sacramento. A project applicant may be the property owner or his or her designee.

“rain sensor” or “rain sensing shutoff device” means a component which automatically suspends an irrigation event when it rains.

“record drawing” or “as-builts” means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

“recreational area” means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

“recycled water”, “reclaimed water”, or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

“reference evapotranspiration” or “ETo” means a standard measurement of the rate of evapotranspiration expressed in inches per unit of time. Reference evapotranspiration is used as the basis for determination of the Maximum Applied Water Allowance to accommodate regional differences in climate. The reference evapotranspiration value is determined by the City of West Sacramento Parks Department as a combination of data from the City’s weather stations and regional California Irrigation Management Information Systems (CIMIS) data.

“rehabilitated landscape” means any re-landscaping project that requires a permit , plan check, or design review, meets the requirements of Section 13.04.1100, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

“runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

“soil moisture sensing device” or “soil moisture sensor” means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

“soil texture” means the classification of soil based on its percentage of sand, silt, and clay.

“Special Landscape Area” (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

“sprinkler head” means a device which delivers water through a nozzle.

“static water pressure” means the pipeline or municipal water supply pressure when water is not flowing.

“station” means an area served by one valve or by a set of valves that operate simultaneously.

“swing joint” means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

“turf” means a ground cover surface of mowed grass.

“valve” means a device used to control the flow of water in the irrigation system.

“water conserving plant species” means a plant species identified as having a low plant factor.

“water feature” means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.

“watering window” means the time of day irrigation is allowed.

“WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, latest edition.

13.04.1120 Landscape Documentation Package

A. Process.

Prior to construction, the project applicant shall submit a Landscape Documentation Package (application) to the City of West Sacramento. Such application may be rejected unless it contains the minimum number of copies requested by City staff, of all required items, as noted in Section 13.04.1120.B.

Such application shall also comply with all other City and State ordinances as appropriate including specifically, but not limited to, the City’s Landscape Development Guidelines, and Master Tree List. Where this ordinance conflicts with the City’s Landscape Development Guidelines or Master Tree List, the most restrictive requirement(s) shall apply.

City staff will review the application (Landscape Documentation) package, and may request additional information from the applicant at any time in order to obtain sufficient information to verify compliance with this ordinance.

If all required components have been submitted, and the package complies with all requirements of this ordinance, the Landscape Documentation package shall be approved by the City, and the applicant will be notified of how to obtain a permit for construction. The applicant shall not commence installation without the proper permit(s).

If City staff determines that the requirements of this ordinance have not been met by the applicant through his/her Landscape Documentation Package and any additional information supplied, the application shall be denied, and the applicant will be notified of the City's determination, as well as the reason for denial. The applicant shall also be informed of re-application and/or appeal procedures, as appropriate.

Upon approval of the Landscape Documentation Package and issuance of the proper permit(s), the project applicant shall:

1. Record the date of such permit in the Certificate of Completion;
2. Submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee.

B. Elements of a Landscape Documentation Package

The Landscape Documentation Package shall include the following six (6) elements:

1. Project Information
 - a. date
 - b. project applicant
 - c. project address (if available, parcel and/or lot number(s))
 - d. total landscape area (square feet)
 - e. project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
 - f. water supply type (e.g., potable, recycled, well)
 - g. checklist of all documents in Landscape Documentation Package
 - h. project contacts to include contact information for the project applicant and property owner
 - i. applicant signature and date with the statement, "I agree to comply with the requirements of the City of West Sacramento's Water Efficient Landscape Ordinance and submit a complete Landscape Documentation Package".
2. Water Efficient Landscape Worksheet
 - a. hydrozone information table
 - b. water budget calculations

1. Maximum Applied Water Allowance (MAWA)
2. Estimated Total Water Use (ETWU)
3. Soil Analysis/Report
4. Landscape Plan
5. Irrigation Plan
6. Grading Plan

C. Water Efficient Landscape Worksheet.

A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections regarding the landscape project being designed: a hydrozone information table, and a water budget calculation.

1. Hydrozone Information Table. A hydrozone information table should contain at least the following information:
 - a. Hydrozone label—(zone or valve designations, or other designations corresponding to the landscape plan)
 - b. Plant Water use Type(s)--High, Medium, or Low. Group Special Landscape Areas (SLAs)
 - c. Irrigation Method—(Micro-spray, spray, rotor, bubbler, drip, etc.)
 - d. Plant Factor. The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
 - e. Hydrozone Area in square feet
 - f. Plant Factor multiplied by the Hydrozone Area

See the example table below:

Hydrozone	Plant Water Use Type(s)	Irrigation Method	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	Spray	0.8	7,000	5,600
2	High	Rotor	0.7	9,000	6,300
3	Medium	Spray	0.5	15,000	7,500
4	Low	Drip	0.3	7,000	2,100
5	Low	Low Flow	0.2	10,000	2,000
				Sum	23,500
6	SLA	Rotor	1.0	2,000	2,000

2. **Water Budget Calculation.** A water budget calculation for a landscape project compares the Maximum Applied Water Allowance (MAWA), to the Estimated Total Water Use (ETWU). For all landscape projects under this ordinance, ETWU shall be less than MAWA.

For both the ETWU and MAWA calculations, project applicants shall use the Reference Evapotranspiration (ETo) value as determined by the City of West Sacramento Parks Department.

- a. Water budget calculations shall adhere to the following requirements:
 1. The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
 2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
 3. All Special Landscape Areas shall be identified and their water use calculated as described below.
 4. ETAF for Special Landscape Areas shall not exceed 1.0.
- b. **MAWA Calculation.** The Maximum Applied Water Allowance shall include an adjustment for Effective Precipitation (Eppt), and be calculated using the equation:

$$\text{MAWA (gallons/yr)} = (\text{ETo} - \text{Eppt}) (0.62) [(0.7)(\text{LA}) + (0.3)(\text{SLA})]$$

Where:

ETo	= Reference Evapotranspiration Rate (inches per year)
Eppt	= 25% of the average rainfall (inches per year)
0.62	= Conversion factor (to gallons)
0.7	= ET Adjustment Factor (ETAF)
LA	= Landscape Area including SLA (square feet)
0.3	= Additional Water Allowance for SLA
SLA	= Special Landscape Area (square feet)

- c. **ETWU Calculation.** The Estimated Total Water Use shall be calculated using the equation:

$$\text{ETWU (gallons/yr)} = (\text{ETo} - \text{Eppt}) (0.62) [((\text{PF})(\text{HA})/\text{IE}) + \text{SLA}]$$

Where:

ET _o	= Reference Evapotranspiration (inches per year)
E _{ppt}	= 25% of the average rainfall (inches per year)
0.62	= Conversion Factor
PF	= Plant Factor from WUCOLS (see Section 13.04.1110)
HA	= Hydrozone Area (square feet)
IE	= Irrigation Efficiency (minimum 0.71)
SLA	= Special Landscape Area (square feet)

D. Soil Analysis/Report. In order to reduce runoff and encourage healthy plant growth, a soil analysis and report shall be completed by the project applicant, or his/her designee, as follows:

1. Submit soil samples to a laboratory for analysis and recommendations.
 - a. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
 - b. The soil analysis may include:
 1. soil texture;
 2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
 3. pH;
 4. total soluble salts;
 5. sodium;
 6. percent organic matter; and
 7. recommendations.
2. The project applicant, or his/her designee, shall comply with one of the following:
 - a. If significant mass grading is not planned, the soil analysis/report shall be submitted to the City of West Sacramento as part of the Landscape Documentation Package; or
 - b. If significant mass grading is planned, the soil analysis/report shall be submitted to the City of West Sacramento as part of the Certificate of Completion.
3. The soil analysis/report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans based on information in the soil analysis report.
4. The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis/report recommendations to the City of West Sacramento with the Certificate of Completion.

E. Landscape Plan. For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. To that end, a landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

1. Plant Material

- a. Any plant or tree conforming to the City's Landscape Development Guidelines and the City's Master Tree List may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. Plants within City rights-of-way or easements will be subject to review and approval by the City. To encourage the efficient use of water, the following is highly recommended:
 1. protection and preservation of native species and natural vegetation
 2. selection of plants based on disease and pest resistance
 3. selection of water-conserving plant and turf species
 4. selection of plants from local and regional landscape program plant lists
- b. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 13.04.1120.F.2.d.
- c. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
 1. Use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate.
 2. Recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines].
 3. Consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
- d. Turf is not allowed on slopes greater than 1:4 where the toe of the slope is adjacent to an impermeable hardscape and where 1:4 means 1 foot of vertical elevation change for every 4 feet of horizontal length.
- e. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and flammable mulches, especially in and around parking lots.
- f. The use of invasive and/or noxious plant species is strongly discouraged. The use of invasive or noxious plant species within City right-of-way or easements will not be permitted.
- g. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

2. Water Features

- a. Recirculating water systems shall be used for water features.

- b. Where available, recycled water shall be used as a source for decorative water features.
- c. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
- d. Pool and spa covers are highly recommended.

3. Mulch and Amendments

- a. A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
- b. Stabilizing mulching products shall be used on slopes.
- c. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
- d. Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 13.04.1120.D).
- e. The use of flammable mulches shall be avoided as noted in Section 13.04.1120.E.1.e.

4. Design Content.

The landscape design plan shall, at a minimum:

- a. delineate and label each hydrozone by number, letter, or other method;
- b. identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
- c. identify recreational areas;
- d. identify areas permanently and solely dedicated to edible plants;
- e. identify areas irrigated with recycled water;
- f. identify type of mulch and application depth;
- g. identify soil amendments, type, and quantity;
- h. identify type and surface area of water features;
- i. identify hardscapes (pervious and non-pervious);
- j. identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
 - 1. infiltration beds, swales, and basins that allow water to collect and soak into the ground;
 - 2. constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and

3. pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
- k. identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
- l. contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
- m. bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

F. Irrigation Plan.

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance.

An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

1. System

- a. Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
- b. Automatic irrigation controllers utilizing either evapotranspiration, soil moisture sensor data, or other such self-adjusting controllers, shall be required for irrigation scheduling in all irrigation systems.
- c. The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
 1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
 2. Static water pressure, dynamic or operating pressure and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
- d. Rain sensors, either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems,

as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

- e. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
- f. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. For additional backflow prevention requirements, the project applicant shall refer to the City's Municipal Code, Section 13.04 Water Service System, Title XI Protection of Drinking Water.
- g. High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.
- h. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
- i. Relevant information from the Soil Analysis Report, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
- j. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
- k. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 13.04.1120.C regarding the Maximum Applied Water Allowance.
- l. The project applicant is encouraged to inquire with the City about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
- m. In mulched planting areas, the use of low volume irrigation is recommended to maximize water infiltration into the root zone.
- n. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
- o. Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
- p. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
- q. Check valves or anti-drain valves are required for all irrigation systems.
- r. Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system. Such areas that fall within City rights-of-way or easements shall utilize low volume irrigation, specifically multi-stream, multi-trajectory rotator sprinklers; subsurface irrigation in these areas will be prohibited.

- s. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
 - 1. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
 - 2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
 - 3. the irrigation designer specifies an alternative design or technology (including multi-stream, multi-trajectory rotator sprinklers), as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 13.04.1120.F.1.h. Prevention of overspray and runoff must be confirmed during the irrigation audit.
- t. Slopes greater than 1:4 shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

2. Hydrozones

- a. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
- b. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- c. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.
- d. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
 - 1. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
 - 2. the plant factor of the higher water using plant is used for calculations.
- e. Individual hydrozones that mix high and low water use plants shall not be permitted.
- f. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Appendix B Section A). This table can also assist with the irrigation audit and programming the controller.

3. Design Content.

The irrigation design plan, at a minimum, shall contain:

- a. location and size of separate water meters for landscape—delineate whether the landscape water supply is connected to, or separate from the domestic supply;
- b. location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- c. static water pressure at the point of connection to the public water supply;
- d. flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- e. recycled water irrigation systems as specified in Section 13.04.1150;
- f. the following statement: “I have complied with the criteria of the City of West Sacramento’s Water Efficient Landscape Ordinance and applied them accordingly for the efficient use of water in this irrigation design plan” ; and
- g. the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

G. Grading Plan.

For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.

1. The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
 - a. height of graded slopes
 - b. drainage patterns
 - c. pad elevations
 - d. finish grade
 - e. stormwater retention improvements, if applicable
2. To prevent excessive erosion and runoff, it is highly recommended that project applicants:
 - a. grade so that all irrigation and normal rainfall remains within property lines and does not drain onto non-permeable hardscapes
 - b. avoid disruption of natural drainage patterns and undisturbed soil
 - c. avoid soil compaction in landscape areas

3. The grading design plan shall contain the following statement: “I have complied with the criteria of the City of West Sacramento’s Water Efficient Landscaping Ordinance and applied them accordingly for the efficient use of water in the grading plan” and shall bear the signature of a licensed professional as authorized by law.

13.04.1130 Certificate of Completion.

A. General.

The Certificate of Completion shall include the following six (6) elements:

1. project information sheet that contains:
 - a. date
 - b. project name
 - c. project applicant name, telephone, and mailing address
 - d. project address and location
 - e. property owner name, telephone, and mailing address
2. mylar and digital “as-built” record drawings in a format acceptable to the City shall be included with the Certificate of Completion unless this requirement is waived in writing by the City.
3. certification by either the signer of the landscape plan, the signer of the irrigation plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;
4. irrigation scheduling parameters used to set the controller (see Section 13.04.1130.B)
5. landscape and irrigation maintenance schedule (see Section 13.04.1130.C)
6. irrigation audit report (see Section 13.04.1130.D)
7. soil analysis/report, if not submitted with the Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 13.04.1120.D)

The project applicant shall submit the signed Certificate of Completion to the City of West Sacramento for review, and ensure that copies of the approved Certificate of Completion are submitted to the property owner or his or her designee.

Upon receipt of the signed Certificate of Completion from the project applicant, the City of West Sacramento shall approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the City of West Sacramento shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

B. Irrigation Scheduling.

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

1. Irrigation scheduling shall be regulated by automatic irrigation controllers.
2. Overhead irrigation shall be scheduled as defined by the City's Urban Water Management Plan, unless weather conditions prevent it. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
3. For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.
4. Parameters used to set the automatic controller shall be developed and submitted for each of the following:
 - a. the plant establishment period
 - b. the established landscape
 - c. temporarily irrigated areas
5. Each irrigation schedule shall consider for each station all of the following that apply:
 - a. irrigation interval (days between irrigation)
 - b. irrigation run times (hours or minutes per irrigation event to avoid runoff)
 - c. number of cycle starts required for each irrigation event to avoid runoff
 - d. amount of applied water scheduled to be applied on a monthly basis
 - e. application rate setting
 - f. root depth setting
 - g. plant type setting
 - h. soil type
 - i. slope factor setting
 - j. shade factor setting
 - k. irrigation uniformity or efficiency setting

C. Landscape and Irrigation Maintenance Schedule.

Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.

1. A regular maintenance schedule shall include, but not be limited to:
 - a. routine inspection
 - b. adjustment and repair of the irrigation system and its components
 - c. aerating and dethatching turf areas
 - d. replenishing mulch
 - e. fertilizing
 - f. pruning
 - g. weeding in all landscape areas

- h. removing obstructions to emission devices

Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.

Project applicants are encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

D. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.

1. For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 13.04.1100:
 - a. the project applicant shall submit an irrigation audit report with the Certificate of Completion to the City of West Sacramento that may include, but is not limited to:
 1. inspection,
 2. system tune-up,
 3. system test with distribution uniformity, reporting overspray or run off that causes overland flow, and
 4. preparation of an irrigation schedule;
 - b. the City may administer programs that include, but are not limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.
 - c. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

13.04.1140 Irrigation Efficiency.

For the purpose of determining Maximum Applied Water Allowance, the average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed this average.

13.04.1150 Recycled Water.

The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described below.

Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the City of West Sacramento stating that recycled water

meeting all public health codes and standards is not available and will not be available for the foreseeable future.

All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

For public projects, irrigated areas within the City rights-of-way and easements, and any other cases the City deems appropriate, the City may require the use of purple irrigation piping to signify recycled water usage, although recycled water may not be available at the time. In these cases, above-ground notifications regarding purple piping (such as purple valve boxes, tags, and signage) need not be installed until recycled water is actually run through the system.

Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor (ETAF) for Special Landscape Areas shall not exceed 1.0.

13.04.1160 Stormwater Management.

Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading plans to minimize runoff and to increase on-site retention and infiltration are encouraged.

Applicants shall refer to the City's Municipal Code, Section 13.10 Urban Stormwater Quality Management and Discharge Control, for information on the City's stormwater management requirements.

Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

13.04.1170 Public Education.

Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.

The City of West Sacramento will provide information to property owners and managers regarding the design, installation, management, and maintenance of water efficient landscapes via the City's website, occasional neighborhood meetings, and other formats as the City deems appropriate.

A. Model Homes.

All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.

Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme.

Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

13.04.1180 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis

This section shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.

The Maximum Applied Water Allowance for existing landscapes shall be calculated as:

$$\text{MAWA} = (\text{ETo})(0.62)(0.8)(\text{LA}).$$

A. Existing landscapes with a water meter

In order to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes, the City of West Sacramento may administer programs that include, but need not be limited to:

1. irrigation water use analyses
2. irrigation surveys
3. irrigation audits

B. Existing landscapes without a water meter

In order to evaluate water use and prevent and minimize water waste, the City of West Sacramento may administer programs that include, but need not be limited to:

1. irrigation surveys
2. irrigation audits

All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

13.04.1190 Water Waste Prevention.

(a) No person shall cause or permit any water furnished to the person's property by the City to run to waste due to inefficient landscape irrigation, runoff due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures.

(b) Restrictions regarding overspray and runoff may be modified if:

(1) the landscape area is adjacent to permeable surfacing and no runoff occurs; or

(2) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

13.04.1200 Penalties.

The requirements of this Article may be enforced per the provisions of Articles IX and X of this Chapter; Chapter 1.12; and any other applicable method to the extent permitted by law.



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