Golden State
Water Company
A Subsidiary of American States Water Company

*Final Report*

# 2010 Urban Water Management Plan
## *West Orange*


Corporate Office
630 E. Foothill Blvd.
San Dimas CA 91773


*August 2011*

Kennedy/Jenks Consultants

*Final Report*

# 2010 Urban Water Management Plan—West Orange

Golden State
Water Company
A Subsidiary of American States Water Company


**Corporate Office**

630 E. Foothill Blvd.
San Dimas, CA 91773


August 2011


**Kennedy/Jenks Consultants**

10850 Gold Center Drive, Suite 350
Rancho Cordova, CA 95670

# Table of Contents

## Table of Contents (cont'd)

## List of Tables

## List of Figures



## List of Appendices

## Notice of Adoption

A meeting to solicit public comments on the 2010 Urban Water Management Plan for the Golden State Water Company West Orange System was held on August 9, 2011 at 6 p.m. at the Backs Community Building in Placentia, California. Notice of this meeting was published in accordance with Section 6066 of the Government Code in the Orange County Register on June 6, 17, and 24, 2011.

Copies of the Urban Water Management Plan were made available to the public at the Golden State Water Company Customer Service Office in Los Alamitos, California, at least one week prior to the public hearing.

Golden State Water Company, hereby, adopts the 2010 Urban Water Management Plan for the West Orange System.

William C. Gedney
Vice President, Asset Management
Golden State Water Company

August 31, 2011

THIS PAGE INTENTIONALLY BLANK

## Abbreviations

| | |
|---|---|
| µg/L | micrograms per liter |
| ac-ft | acre-feet |
| ac-ft/yr or AFY | acre-feet per year |
| Act | Urban Water Management Planning Act |
| AMR | automatic meter reading |
| AWWA | American Water Works Association |
| BMPs | best management practices |
| BPP | basin production percentage |
| Cal EMA | California Emergency Management Agency |
| CAL Green Code | 2010 California Green Building Standard Code |
| ccf | hundred cubic feet |
| CDPH | California Department of Public Health |
| CII | commercial, industrial, and institutional |
| CIMIS | California Irrigation Management Information System |
| COG | Council of Governments |
| Council or CUWCC | California Urban Water Conservation Council |
| CPUC | California Public Utilities Commission |
| CRA | Colorado River Aqueduct |
| DAS | Deep Aquifer System |
| DMM | Demand Management Measure |
| DOF | California Department of Finance |
| DWF | dry weather flow |
| DWR | Department of Water Resources (California) |
| DWR Guidebook | Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan |

| | |
|---|---|
| ERP | Emergency Response Plan |
| ETo | evapotranspiration |
| GAC | Granular Activated Carbon |
| GIS | Geographic Information System |
| gpcd | gallons per capita day |
| gpd | gallons per day |
| gpm | U.S. gallons per minute |
| GSWC | Golden State Water Company |
| GWRS | Groundwater Replenishment System |
| HCD | Housing and Community Development |
| HECW | high efficiency clothes washers |
| HET | high efficiency toilets |
| IRP | Integrated Resources Plan |
| IRS | Internal Revenue Service |
| LACDPW | Los Angeles County Department of Public Works |
| LOI | Letters of Intent |
| MAF | million acre-feet per year |
| MCL | maximum contaminant level |
| Metropolitan | Metropolitan Water District of Southern California |
| MF | multi-family |
| mgd | million gallons per day |
| Mn | manganese |
| MOU | memorandum of understanding (regarding urban water conservation in California) |
| MWDOC | Municipal Water District of Orange County |
| N/A | not available, not applicable |
| NAICS | North American Industry Classification System |
| O&M | operation and maintenance |

| | |
|---|---|
| OCSD | Orange County Sanitation District |
| OCWD | Orange County Water District |
| PAS | Principal Aquifer System |
| pCi/L | picoCuries per liter |
| PTA | Packed Tower Aeration |
| RHNA | Regional Housing Needs Allocation |
| RTP | Regional Transportation Plan |
| SAS | Shallow Aquifer System |
| SBX7-7 | Senate Bill X7-7, The Water Conservation Act of 2009 |
| SCAG | Southern California Association of Governments |
| SD | Science Discover |
| SDCWA | San Diego County Water Authority |
| SDWA | Safe Drinking Water Act |
| SF | single-family |
| SWP | State Water Project |
| TAF | thousand acre-feet per year |
| ULFT | ultra-low-flush-toilet |
| USEPA | U.S. Environmental Protection Agency |
| UWMP | Urban Water Management Plan |
| WAP | Water Action Plan |
| WBIC | weather-based irrigation controllers |
| WLCD | Water Loss Control Department |
| WRCC | Western Regional Climate Center |
| WRD | Water Replenishment District |
| WSAP | Water Supply Allocation Plan |
| WSDM Plan | Water Surplus and Drought Management Plan |
| WSS | WaterSense Specification |

THIS PAGE INTENTIONALLY BLANK

## Definitions

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

*CHAPTER 2. DEFINITIONS*

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

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

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

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

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

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

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

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

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

THIS PAGE INTENTIONALLY BLANK

# Chapter 1: Plan Preparation

## 1.1 Background

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

Urban water suppliers having more than 3,000 service connections or water use of more than 3,000 acre-feet per year (ac-ft/yr) for retail or wholesale uses are required to submit a UWMP every 5 years to the California Department of Water Resources (DWR). The UWMP typically must be submitted by December 31 of years ending in 0 and 5, however SBX7-7 extended the UWMP deadline to July 1, 2011 to provide for development by DWR of required evaluation methodologies for determining conservation goals. GSWC prepared an UWMP for the West Orange System in 1985, 1990, 1995, 2000, and 2005. This 2010 UWMP is an update to the 2005 plan.

GSWC water use targets for the West Orange System were developed based on Compliance Method 3 and the Minimum Reduction requirement, as described by SBX7-7 and supplemental guidance from DWR.

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

*Section 10610.2.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

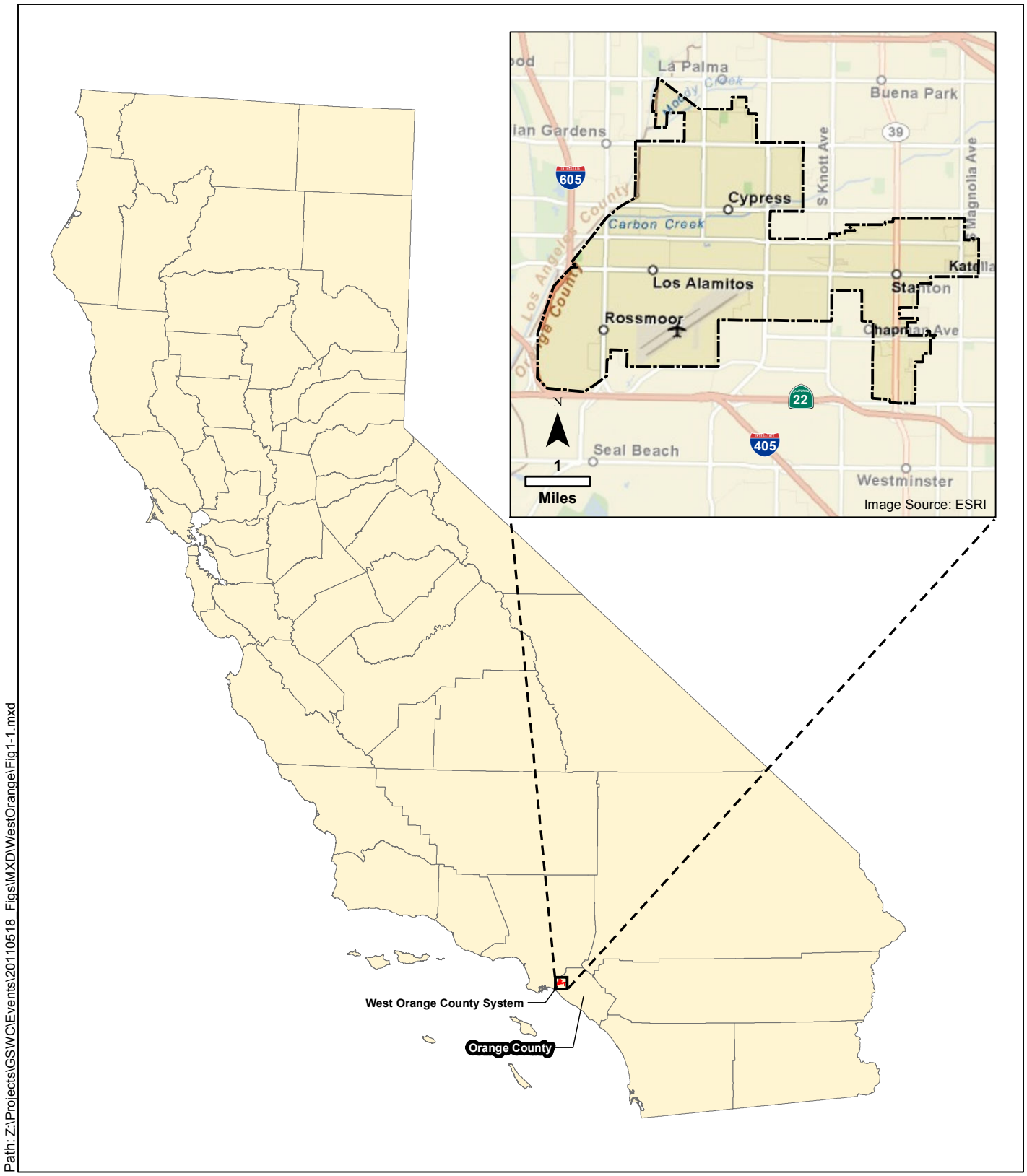
## 1.2 System Overview

GSWC is an investor-owned public utility company which owns 38 water systems throughout California regulated by the California Public Utilities Commission (CPUC). This UWMP has been prepared for the West Orange System.

Located in the northwest portion of Orange County, the West Orange System serves most of the Cities of Cypress, Stanton, and Los Alamitos, small portions of the Cities of Seal Beach, Garden Grove and La Palma, and adjacent unincorporated areas of Orange County including the community of Rossmoor. The service area is primarily characterized by residential land use, with some commercial and industrial land use. The West Orange System is part of GSWC's Orange County District. Figure 1-1 illustrates the location of the West Orange System.

## 1.3 Notice of Document Use

GSWC is committed to implementation of the projects, plans, and discussions provided within this document. However, it is important to note that execution of the plan is contingent upon the regulatory limitations and approval of the CPUC and other state agencies. Additionally, this document merely presents the water supply, reliability, and conservation programs known and in effect at the time of adoption of this plan.




Path: Z:\Projects\GSWC\Events\20110518_Figs\MXD\WestOrange\Fig1-1.mxd

**Legend**

West Orange Service Area

N

0 45 90

Miles

**Kennedy/Jenks Consultants**

Golden State Water Company
2010 Urban Water Management Plan

**West Orange System**
**Location Map**

K/J 1070001*00
August 2011

**Figure 1-1**

THIS PAGE INTENTIONALLY BLANK

## 1.4 Public Utility Commission 2010 Water Action Plan

The CPUC adopted the 2005 Water Action Plan (WAP) in December 2005 and an updated 2010 WAP in October 2010. The WAP is a general policy document, and specific implementation of policies and programs, along with modifications to CPUC ratemaking policies, and other programs including conservation, long-term planning, water quality and drought management programs are ongoing.

The purpose of the 2010 WAP update was to establish renewed focus on the following elements:

1. Maintain the highest standards of water quality;
2. Promote water infrastructure investment;
3. Strengthen water conservation programs to a level comparable to those of energy utilities;
4. Streamline CPUC regulatory decision-making;
5. Set rates that balance investment, conservation, and affordability; and
6. Assist low-income ratepayers.

GSWC has been actively involved with the CPUC in suggesting optimal approaches to the WAP. In particular, the GSWC has suggested specific implementation measures and modifications to certain CPUC rate setting practices so that regulated utilities are able as a practical matter to achieve the policy objectives of the WAP. These efforts are intended to include further investment in local resource optimization, reduced reliance on imported supplies, enhanced conservation, and intensification of company-wide efforts to optimize water resource mix, including planned water supply projects and programs to meet the long-term water supply needs of GSWC's customers.

## 1.5 Agency Coordination and Public Participation

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

*Section 10620.*

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

*Section 10621.*

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

*Section 10635.*

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

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

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

| Table 1-1: Coordination with Agencies | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Agency** | **Contacted for Assistance** | **Participated in UWMP Development** | **Commented on the Draft** | **Attended Public Meetings** | **Received Copy of the Draft** | **Sent Notice of Intent to Adopt** | **Not Involved/ No Information** |
| Southern California Association of Governments | ✓ | | | | | | |
| City of Buena Park | ✓ | | | | | ✓ | |
| City of Cypress | ✓ | | | | | ✓ | |
| City of Garden Grove | ✓ | ✓ | | | | ✓ | |
| City of La Palma | ✓ | | | | | ✓ | |
| City of Los Alamitos | ✓ | | | | | ✓ | |
| City of Seal Beach | ✓ | | | | | ✓ | |
| City of Stanton | ✓ | | | | | ✓ | |
| County of Orange | ✓ | | | | | ✓ | |
| Municipal Water District Orange County | ✓ | ✓ | | | ✓ | ✓ | |
| Orange County Sanitation District | ✓ | ✓ | | | | ✓ | |
| Rossmoor / Los Alamitos Sewer District | ✓ | | | | | ✓ | |

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

## 1.6 Plan Adoption and Submittal

Public participation and plan adoption requirements are detailed in the following sections of the Act:

> *Section 10621.*
> *(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640)*
>
> *Section 10642. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*
>
> *Section 10644.*
> *(a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.*
>
> *Section 10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.*

A public hearing to review the 2010 West Orange System UWMP was held on August 9, 2011 at the Backs Community Building in Placentia, California. This public session was held for review and comment on the draft UWMP before approval by GSWC. Legal public notices for the public hearing and availability of the plan for review and comment were published in advance in the local newspapers in accordance with Government Code Section 6066. Notifications were also posted to GSWC's website (www.gswater.com).

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

- Copy of the public hearing notice from the local newspaper,
- Screen capture of website posting of public hearing notice,
- Notifications and follow-up correspondence provided to cities and counties, and
- Meeting minutes from the public hearing pertaining to the UWMP.

The final UWMP, as adopted by GSWC, will be submitted to DWR, the California State Library, and cities and counties within which GSWC provides water within 30 days of adoption. Likewise, copies of any amendments or changes to the plan will be provided to the aforementioned entities within 30 days. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning). Adopted copies of this plan will be made available to the public at GSWC's West Orange Customer Service Office no later than 30 days after submitting the final UWMP to DWR.

## 1.7 UWMP Preparation

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

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

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

The adopted plan is available for public review at GSWC's West Orange Office as required by Section 10645. Copies of the plan were submitted to DWR, cities and counties within the service area, the State Library, and other applicable institutions within 30 days of adoption as required by Section 10644. Appendix H includes copies of the transmittals included with the adopted plan as supporting documentation.

## 1.8 UWMP Implementation

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

GSWC is committed to the implementation of this UWMP concurrent with the scheduled activities identified herein as required by Section 10643 of the Act. Each system is managed through GSWC District offices and is afforded staff with appropriate regulatory approval to properly plan and implement responses identified in this document and other key planning efforts to proactively address water supply reliability challenges. Furthermore, each region of GSWC has a conservation coordinator that oversees the implementation of Demand Management Measures (DMMs) through GSWC participation in the California Urban Water Conservation Council's (Council or CUWCC) Memorandum of Understanding (MOU).

## 1.9 Content of the UWMP

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

| Table 1-2: Summary of UWMP Chapters and Corresponding Provisions of the California Water Code | | | |
|---|---|---|---|
| **Chapter** | **Corresponding Provisions of the Water Code** | | **DWR Guidebook Checklist No.** |
| Chapter 1: Plan Preparation | 10642 | Public participation | 55 and 56 |
| | 10643 | Plan implementation | 58 |
| | 10644 | Plan filing | 59 |
| | 10645 | Public review availability | 60 |
| | 10620 (a)–(e) | Coordination with other agencies; document preparation | 4 |
| | 10621 (a)–(c) | City and county notification; due date; review | 6 and 54 |
| | 10621 (c) | UWMP adoption | 7 and 57 |
| | 10620 (f) | Resource optimization | 5 |
| Chapter 2: System Description | 10631 (a) | Area, demographics, population, and climate | 8-12 |
| Chapter 3: Water Use | 10608 | Urban water use targets | 1 |
| | 10631 (e), (k) | Water use, data sharing | 25 and 34 |
| | 10631 (k) | Data to wholesaler | 33 |
| Chapter 4: Water Supply | 10631 (b)–(d), (h), (k) | Water sources, reliability of supply, transfers and exchanges, supply projects, data sharing | 13-21, 24, 30, 33 |
| | 10631 (i) | Desalination | 31 |
| | 10633 | Recycled water | 44-51 |
| Chapter 5: Water Quality | 10634 | Water quality impacts on reliability | 52 |
| Chapter 6: Water Supply Reliability | 10631 (c) (1) | Water supply reliability and reliability vulnerability to seasonal or climatic shortage | 22 |
| | 10631 (c) (2) | Factors resulting in inconsistency of supply | 23 |
| | 10635 (a) | Reliability during normal, dry, and multiple-dry years | 53 |
| Chapter 7: Conservation Program and Demand Management Measures | 10631 (f)–(g), (j),10631.5, 10608.26 (a), 10608.36 | Conservation Program, DMMs, and SBX7-7 water use reduction plan | 2, 26-29, 32 |
| Chapter 8: Water Shortage Contingency Plan | 10632 | Water shortage contingency plan | 35-43 |

## 1.10 Resource Optimization

Section 10620(f) of the Act asks urban water suppliers to evaluate water management tools and options to maximize water resources and minimize the need for imported water from other regions. GSWC understands the limited nature of water supply in California and is committed to optimizing its available water resources. This commitment is demonstrated through GSWC's use of water management tools throughout the company to promote the efficient use of water supplies from local sources, wherever feasible. Additionally, GSWC takes efforts to procure local reliable water supplies wherever feasible and cost effective. GSWC is a regular participant in regional water resources planning efforts, and has developed internal company water resource plans and robust water conservation programs.

GSWC has implemented a robust water conservation program, deployed through each region of the company. In an effort to expand the breadth of offered programs, GSWC partners with wholesale suppliers, energy utilities, and other agencies that support water conservation programs.

THIS PAGE INTENTIONALLY BLANK

# Chapter 2: System Description

Chapter 2 summarizes the West Orange System's service area and presents an analysis of available demographics, population growth projections, and climate data to provide the basis for estimating future water requirements.

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

> *Section 10631*
>
> *(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.*

## 2.1 Area

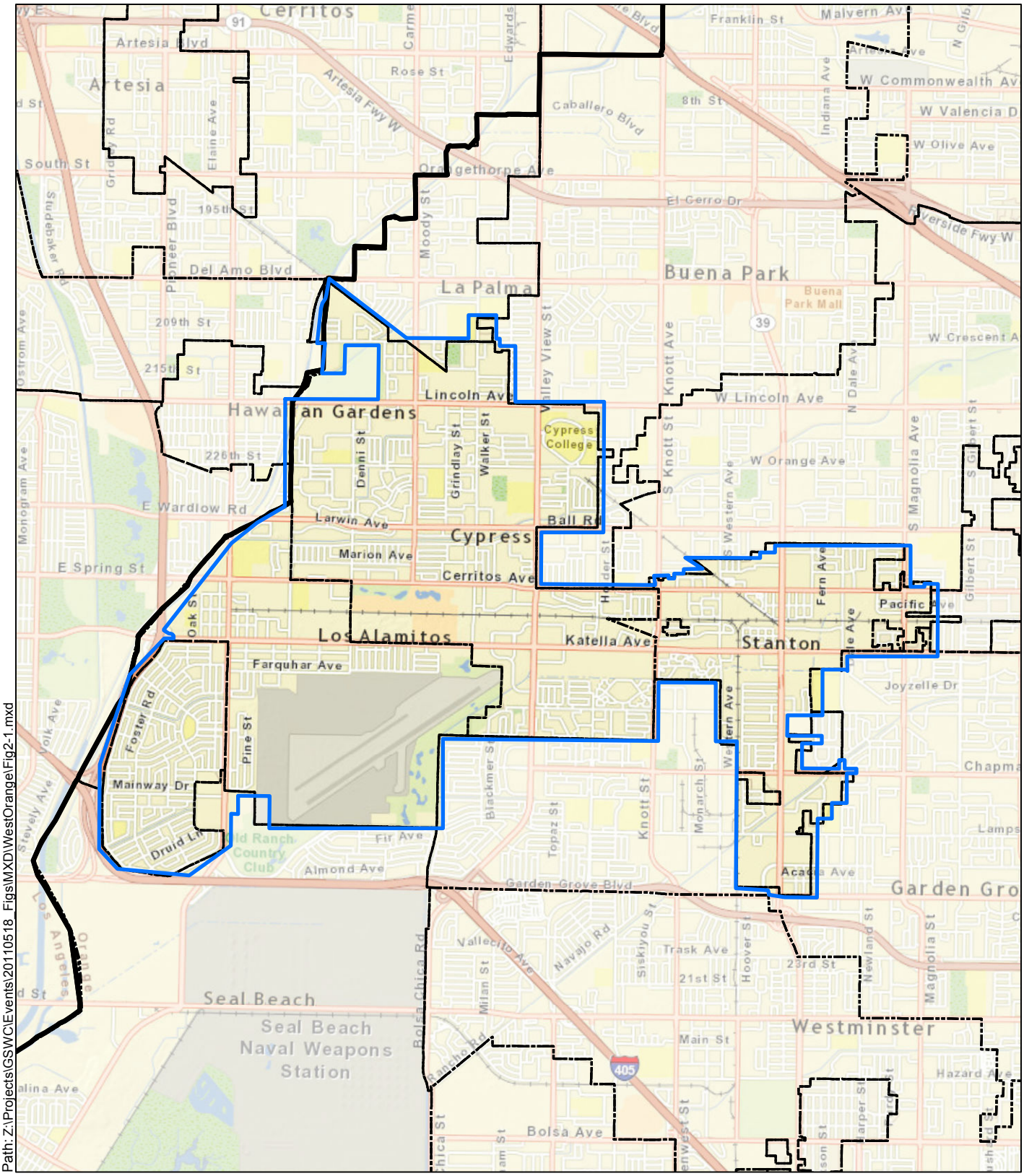
The West Orange System is located in the northwest portion of Orange County and serves most of the Cities of Cypress, Stanton, and Los Alamitos, small portions of the Cities of Seal Beach, Garden Grove and La Palma, and adjacent unincorporated areas of Orange County including the community of Rossmoor. Figure 2-1 illustrates the customer service area of West Orange System. The service area is primarily characterized by residential land use, with some commercial and industrial land use. The industrial development is mainly in the southerly portions of the system.

## 2.2 Demographics

Cypress City was chosen as demographically representative of the West Orange System. According to 2000 U.S. Census Data, the median age of Cypress City's residents is 36.7 years. Cypress City has an average household size of 2.93 and a median household income of approximately $64,377 in 1999 dollars or $84,076 in 2010 dollars.

As detailed by the City of Cypress General Plan 2000 and according to the planning departments of the cities of Stanton and Los Alamitos, more than 90 percent of the land area is near build-out. There are only a few undeveloped individual parcels in the system and any growth occurring will likely be a combination of urban expansion, redevelopment, and in-fill. In a built-out or nearly built-out area, changes are typically minor and difficult to predict.

THIS PAGE INTENTIONALLY BLANK




Path: Z:\Projects\GSWC\Events\20110518_Figs\MXD\WestOrange\Fig2-1.mxd

Image Source: ESRI

**Legend**

- West Orange System Boundary
- City Boundary
- County Boundary

N

0 3,000 6,000

Feet

**Kennedy/Jenks Consultants**

Golden State Water Company
2010 Urban Water Management Plan

**West Orange System Service Area**

K/J 1070001*00
August 2011

**Figure 2-1**

THIS PAGE INTENTIONALLY BLANK

## 2.3 Population, Housing and Employment

Population, housing, and employment projections were developed for the West Orange System using the Southern California Association of Governments (SCAG) population, housing and employment data. SCAG last updated its projections for population, household, and employment growth through the year 2035 using the 2008 "Integrated Growth Forecasting" process used in the 2008 Regional Transportation Plan (2008 RTP). SCAG's methodology is described below, followed by the derivation of population projections for the West Orange System. Previous and current projections utilize 2000 U.S. Census Data.

SCAG is currently in the process of developing its 2012 Regional Transportation Plan (2012 RTP) which will utilize a new population projection model based on 2010 U.S. Census data. In certain cases, growth rates using these preliminary data are significantly reduced from the 2008 model. The population, household, and employment projections in this document use the adopted 2008 RTP data. Future UWMP updates will be able to utilize 2012 RTP projections as well as 2010 Census data.

### 2.3.1 SCAG Population Projection Development Methodology

Population, housing, and employment data are derived from the 2000 U.S. Census, which forms a baseline for local data projections. SCAG applies a statistical cohort-component model and the headship rate to the 2000 U.S. Census data for regional, county, and household demographic projections. To evaluate the West Orange System, SCAG data was used in census tract form, the smallest geographic division of data that SCAG provides. SCAG projects subcounty and census tract demographic trends using the housing unit method.

The Integrated Growth Forecasting process uses a variety of estimates and projections from the federal and state governments. Sources include the U.S. Department of Labor, Internal Revenue Service (IRS), U.S. Citizenship and Immigration Services, U.S. Department of Health and Human Services, California Department of Finance (DOF), California Employment Development Department, and information received through the Intergovernmental Review process. A detailed explanation of the population projection process can be found in the adopted SCAG 2008 Regional Transportation Plan, Growth Forecast Report for SCAG.

### 2.3.2 Historical and Projected Population

SCAG-derived census-tract projections were used to determine historical and projected population from 1997 to 2035. The West Orange System service area boundaries often contain multiple census tracts, many of which have boundaries that do not coincide exactly with service area boundaries. The population projection analysis consisted of superimposing service area boundaries over census tract boundaries, identifying the applicable overlapping census tracts, and developing a percentage estimate for each overlapping area. For a census tract 100 percent within the service area boundaries, it was assumed that 100 percent of the associated census tract population data was applicable to the West Orange System. For areas where the overlap was not exact, the area of overlap as a percentage was applied to the data to develop an estimate of applicable population. Appendix G, Table G-1 lists the census tracts with a corresponding estimate of what percent of each tract lies within the West Orange System. It was typically assumed that the various types of housing and employment within a census tract are distributed uniformly within all parts of that census tract, unless maps indicated non-uniform concentrations. In these cases, population estimates were either increased or decreased as applicable to match the existing land use. Appendix G, Table G-2 contains all of the SCAG's

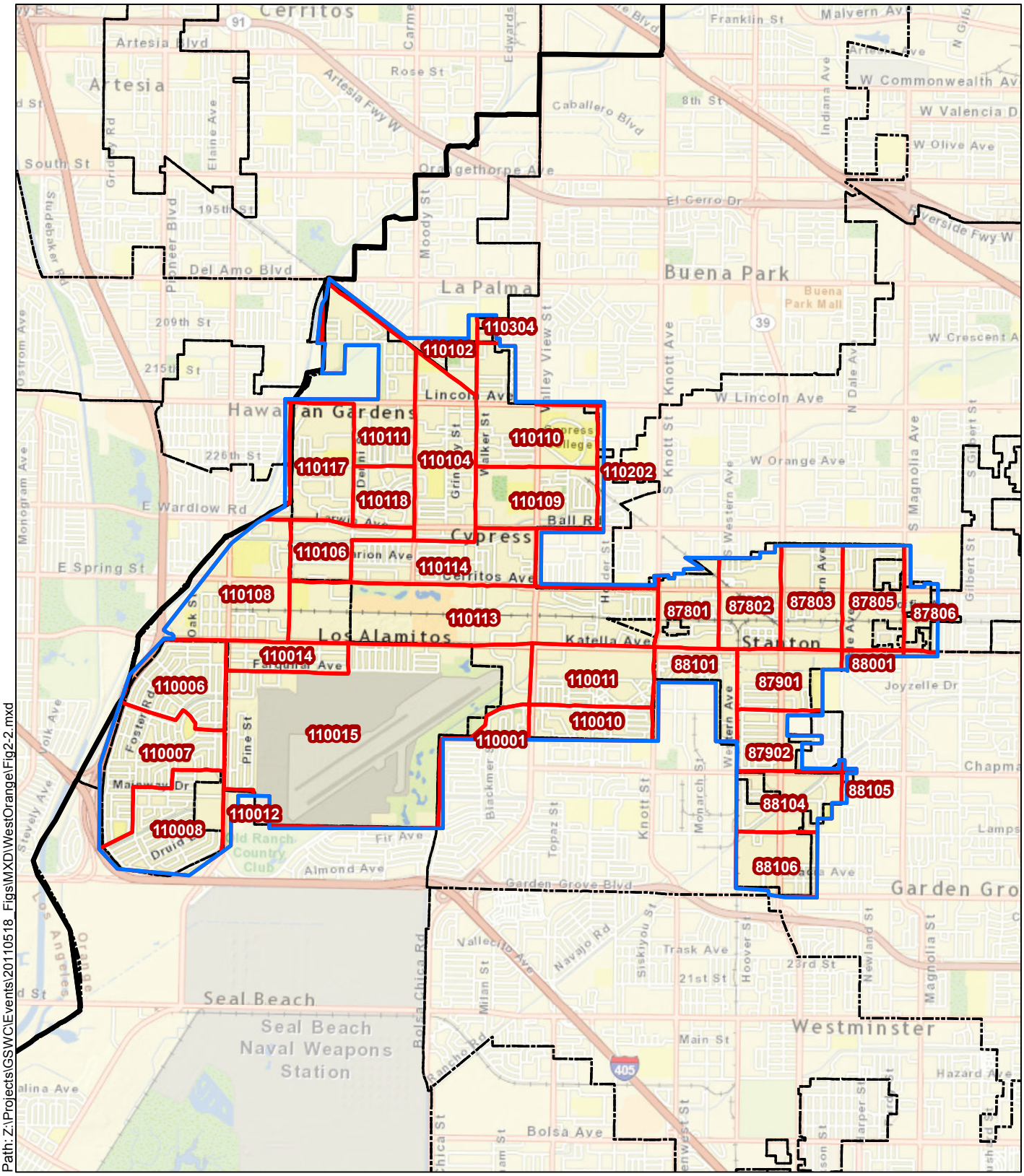
historic and projected demographic data for each census tract number from 2005 through 2035. Figure 2-2 details the census tracts within the West Orange System.

Annual estimates of historical population between 1997 and 2010 required for SBX7-7 are provided in Table 2-1. The population estimates were developed following DWR *Technical Methodology 2: Service Area Population*. GSWC is considered a Category 2 water supplier because they maintain a Geographic Information System (GIS) of their service area. The per-connection methodology described in Appendix A of *Technical Methodology 2* was used since annual estimates of direct service area population from SCAG or other local government agencies were not available. This method estimates annual population by anchoring the ratio of year 2000 residential connections to the year 2000 Census population. This ratio was then linearly scaled to active residential connections data to estimate population for the non-census years in which water supply data were available: 1997 through 2010. The residential billing category includes traditional single-family residential connections; however, since GSWC does not have a specific multi-family billing category that only encompasses apartment complexes and other types of multi-family housing units, the ratio of year 2000 Census total population per residential connections was used for projecting population growth.

Table 2-1: West Orange System Historical Population

| Year | Service Area Population |
|---|---|
| 1997 | 106,921 |
| 1998 | 106,813 |
| 1999 | 107,187 |
| 2000 | 107,178(1) |
| 2001 | 107,858 |
| 2002 | 108,250 |
| 2003 | 109,016 |
| 2004 | 109,422 |
| 2005 | 109,516 |
| 2006 | 109,967 |
| 2007 | 110,706 |
| 2008 | 110,782 |
| 2009 | 111,237 |
| 2010 | 111,418 |

Note:
1. Population for year 2000 from 2005 UWMP.




Path: Z:\Projects\GSWC\Events\20110518_Figs\MXD\WestOrange\Fig2-2.mxd

Image Source: ESRI

## Legend

- West Orange System Boundary
- Census Tract Boundary within Service Area
- City Boundary
- County Boundary

N

0 3,000 6,000

Feet

**Kennedy/Jenks Consultants**

Golden State Water Company
2010 Urban Water Management Plan

**West Orange System Service Area with Census Tract Boundary**

K/J 1070001*00
August 2011

**Figure 2-2**

THIS PAGE INTENTIONALLY BLANK

As concluded from analysis of SCAG demographic data, the West Orange System had an estimated population of 111,418 people in 2010 and is expected to reach 122,498 by 2035. A summary of historic and projected population, households, and employment within the West Orange System (based on SCAG growth rate data) is presented in Table 2-2 and illustrated in Figure 2-3. To ensure consistency between the historical and projected population data required for this plan, projections for 2015 through 2035 were adjusted relative to the 2010 population benchmark using the appropriate SCAG percentage growth rates in each category. For this reason, SCAG projections after 2000 for the Census Tracts do not correlate precisely with the estimates included in this plan.

Table 2-2: West Orange System Historical and Projected Population

| Year | Service Area Population | Service Area Household | Service Area Employment | Data Source |
|---|---|---|---|---|
| 2005 | 109,516 | 35,279 | 54,895 | GSWC |
| 2010 | 111,418 | 35,684 | 61,227 | GSWC |
| 2015 | 114,665 | 36,394 | 65,618 | SCAG |
| 2020 | 118,110 | 37,076 | 69,087 | SCAG |
| 2025 | 120,047 | 37,484 | 69,786 | SCAG |
| 2030 | 121,830 | 37,856 | 70,522 | SCAG |
| 2035 | 122,498 | 38,075 | 70,588 | SCAG |

Notes:
1. This table is based on the DWR Guidebook Table 2.
2. Dashed line represents division between historic and projected data.
3. Growth rates for population, household, and employment are based on SCAG projections.

In summary, from 2005 to 2010 the West Orange population increased 1 percent, which is a growth rate of approximately 0.2 percent per year. By 2035, population is expected to increase by a total of 10 percent, from 111,418 in 2010 to 122,498 in 2035, which is a 0.4 percent growth rate per year. The number of households is expected to grow 7 percent during the same period, which equates to an annual household growth rate of 0.3 percent. Employment is expected to grow 15 percent during the same period, which equates to an annual employment growth rate of 0.6 percent. Areas with the highest projected growth increases are also the areas that will see the largest increase in water use. SCAG's demographic analysis does not project any planned residential developments for future years. As discussed in the demographics section, new development and redevelopment projects in the West Orange System may contribute to future growth.

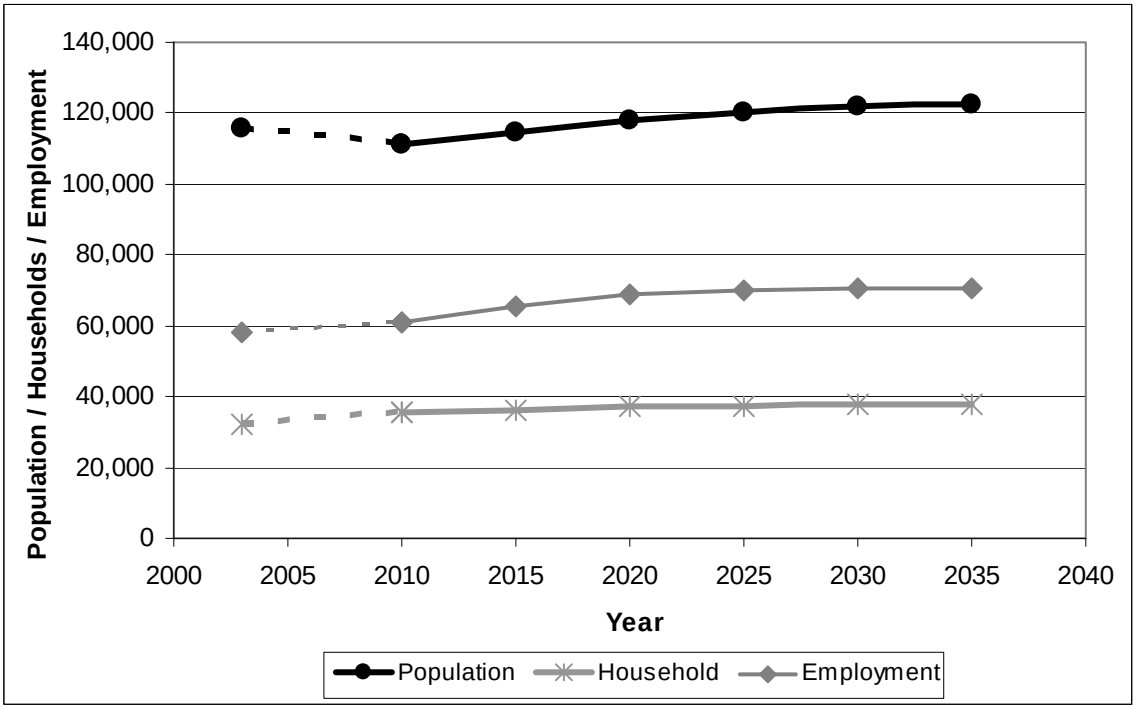



Figure 2-3: Historical and Projected Population, Household and Employment Growth within the West Orange System

## 2.4 Climate

The West Orange System has cool, humid winters and warm, low humid summers. Western Regional Climate Center (WRCC) has maintained 30 years of historical climate records for some cities only. WRCC does not have a station at the City of Cypress and therefore the Santa Ana Station, 11 miles from Cypress, was utilized for the climate data analysis.

The WRCC's website (www.wrcc.dri.edu) maintains historical climate records for the past 100 years for the Santa Ana Station. Table 2-3 presents the monthly average climate summary based on historical data for West Orange System.

In the winter, the lowest average monthly temperature is approximately 43 degrees Fahrenheit. The highest average monthly temperature reaches approximately 85 degrees Fahrenheit in the summer. Figure 2-4 presents the monthly average precipitation based on 100-year historical data. The rainy season is typically from November to March. Monthly precipitation during the winter months ranges from 1 to 3 inches. Low humidity occurs in the summer months from May to October. The moderately hot and dry weather during the summer months typically results in moderately high water demand.

Similar to WRCC in the West Orange area, the California Irrigation Management Information System (CIMIS) website (http://www.cimis.water.ca.gov) tracks and maintains records of evapotranspiration (ETo) for only a few cities. ETo statistics used for this system come from Santa Ana station, which is 10 miles from West Orange System. ETo is a standard measurement of environmental parameters that affect the water use of plants. ETo is given in

inches per day, month, or year and is an estimate of the ETo from a large field of well-watered, cool-season grass that is 4- to 7-inches tall. The monthly average ETo is presented in inches in Table 2-3. As the table indicates in correlation to high temperatures and low humidity, a greater quantity of water is evaporated during July and August which may result in high water demand.

Table 2-3: Monthly Average Climate Data Summary for West Orange System

| Month | Standard Monthly Average ETo[2] (inches) | Average Total Rainfall (inches) | Average Temperature (degrees Fahrenheit) | |
|---|---|---|---|---|
| | | | Max | Min |
| January | 1.8 | 2.73 | 68.0 | 43.0 |
| February | 2.0 | 3.08 | 68.9 | 44.8 |
| March | 3.4 | 2.23 | 70.6 | 46.6 |
| April | 4.2 | 1.04 | 73.0 | 49.9 |
| May | 4.5 | 0.25 | 75.2 | 53.9 |
| June | 4.5 | 0.06 | 78.6 | 57.3 |
| July | 5.4 | 0.01 | 83.6 | 60.8 |
| August | 5.0 | 0.06 | 84.7 | 61.6 |
| September | 3.9 | 0.23 | 83.9 | 59.2 |
| October | 3.0 | 0.46 | 79.4 | 54.4 |
| November | 1.9 | 1.27 | 74.2 | 47.4 |
| December | 1.6 | 2.20 | 68.8 | 43.5 |

Notes:
1. Data from Santa Ana Station.
2. Evapotranspiration (ETo) from http://www.cimis.water.ca.gov/cimis/welcom.jsp.

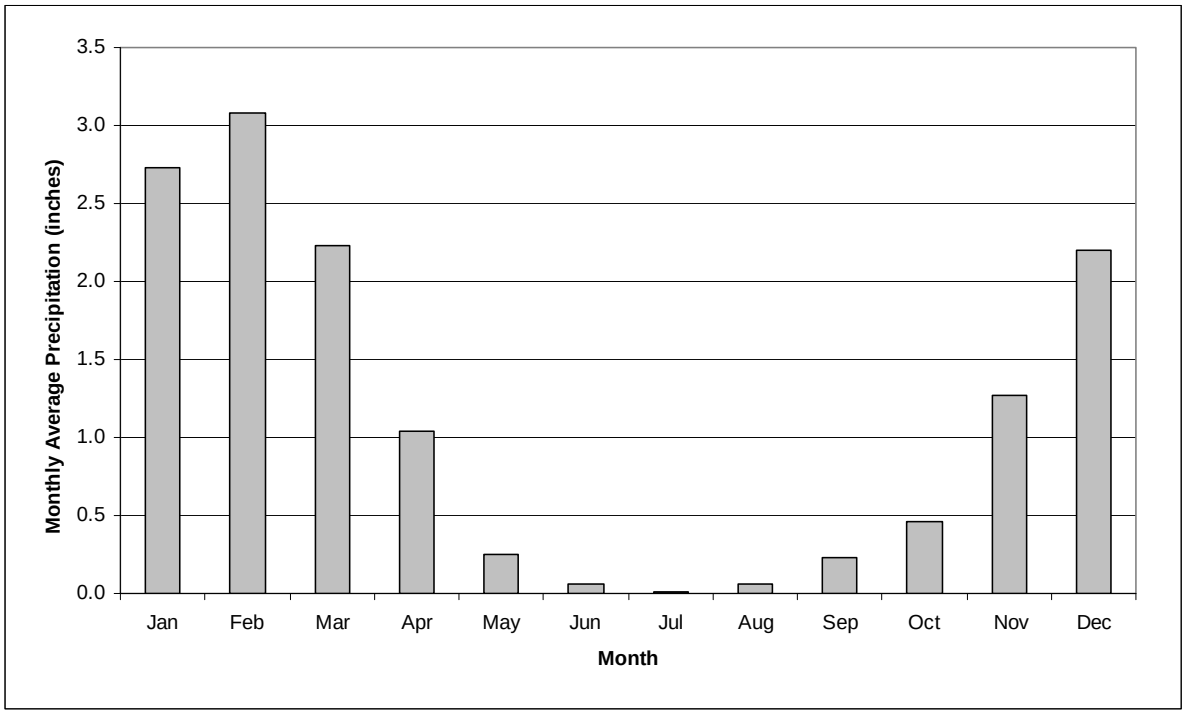



Figure 2-4: Monthly Average Precipitation in West Orange System Based on 100-Year Historical Data

# Chapter 3: Water Use

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

> *Section 10631.*
> *(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water-use sectors including, but not necessarily limited to, all of the following uses:*
> *(A) Single-family residential*
> *(B) Multifamily*
> *(C) Commercial*
> *(D) Industrial*
> *(E) Institutional and governmental*
> *(F) Landscape*
> *(G) Sales to other agencies*
> *(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof*
> *(I) Agricultural.*
> *(2) The water-use projections shall be in the same five-year increments described in subdivision (a).*

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

> *Section 10631.*
> *(k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water-use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).*

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

Section 10608.20(e) states the following:

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

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

## 3.1 Historical Water Use

Historical water use data from 1994 to 2010 were analyzed in order to provide an overview of historical water usage for the West Orange System. Figure 3-1 shows the historical number of metered service connections and water use for the West Orange System from 1994 through 2010.

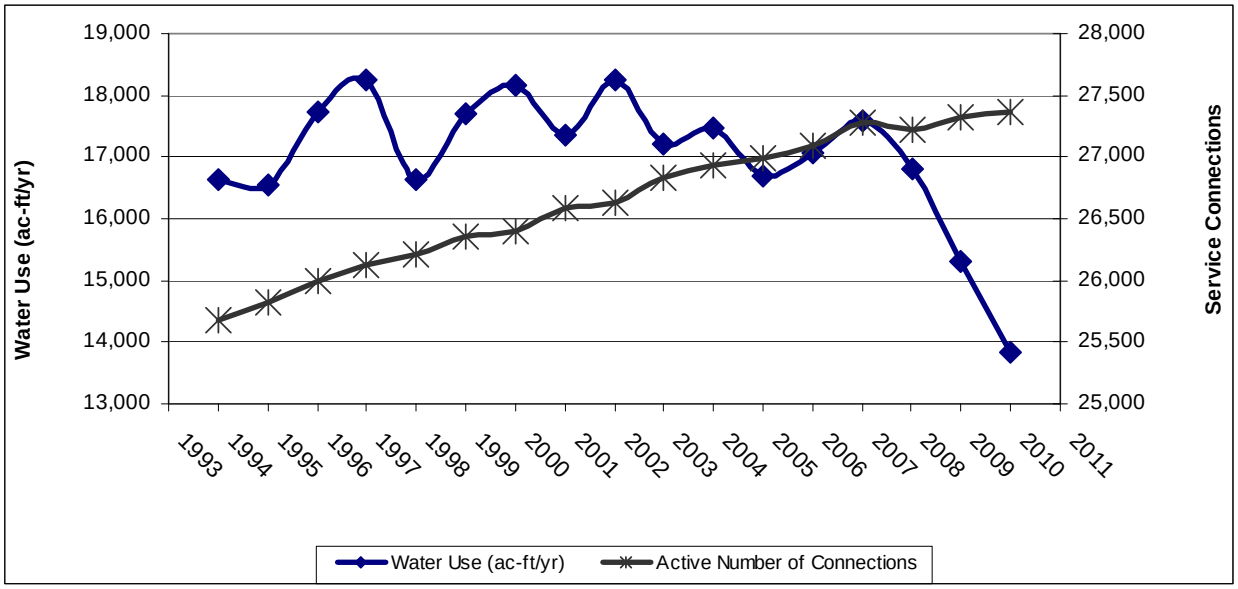



Figure 3-1: Historical Number of Metered Service Connections and Water Use

Figure 3-1 shows a decline in water use beginning in 2007 with an approximate 19 percent decline from 2008 to 2010. Review of similar data from other systems suggests the recent decline in water use has been widespread and is not isolated to the West Orange System. The recent decline in water use from 2008 to 2010 may be a result of several factors including: several years of cool summers, a statewide drought that forced mandatory water reductions and conservation in many areas, and an economic downturn that has caused many businesses to close and increased housing vacancies.

The customer billing data for the system consists of annual water sales data. The water sales data was sorted by customer type using the assigned North American Industry Classification System (NAICS) codes. Then, the sorted water sales data were further grouped into the following seven categories: single-family, multi-family, industrial, commercial, institutional/government, landscape, and other. Table 3-1 shows the historical water use by customer type.

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

| YEAR | Single-Family | Multi-Family | Commercial | Industrial | Institutional/ Government | Landscape | Agriculture | Other | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1994 | 10,131 | 2,052 | 1,855 | 213 | 1,236 | 1,096 | 51 | 4 | 16,638 |
| 1995 | 9,903 | 2,195 | 1,834 | 243 | 1,270 | 1,069 | 41 | 6 | 16,561 |
| 1996 | 10,266 | 2,499 | 1,942 | 230 | 1,439 | 1,291 | 65 | 7 | 17,739 |
| 1997 | 10,227 | 2,804 | 2,040 | 263 | 1,452 | 1,373 | 72 | 6 | 18,237 |
| 1998 | 8,961 | 2,967 | 2,156 | 275 | 1,100 | 1,124 | 55 | 5 | 16,643 |
| 1999 | 9,034 | 3,221 | 2,461 | 290 | 1,317 | 1,300 | 75 | 2 | 17,700 |
| 2000 | 8,972 | 3,420 | 2,465 | 335 | 1,442 | 1,458 | 61 | 1 | 18,154 |
| 2001 | 8,601 | 3,358 | 2,444 | 342 | 1,301 | 1,248 | 67 | 2 | 17,363 |
| 2002 | 8,994 | 3,346 | 2,421 | 417 | 1,396 | 1,596 | 68 | 13 | 18,251 |
| 2003 | 8,586 | 3,248 | 2,383 | 341 | 1,188 | 1,405 | 36 | 12 | 17,199 |
| 2004 | 8,713 | 3,246 | 2,372 | 361 | 1,263 | 1,452 | 40 | 35 | 17,482 |
| 2005 | 8,381 | 3,091 | 2,321 | 356 | 1,099 | 1,398 | 33 | 10 | 16,689 |
| 2006 | 8,572 | 3,043 | 2,316 | 366 | 1,187 | 1,536 | 33 | 15 | 17,068 |
| 2007 | 8,707 | 3,010 | 2,361 | 392 | 1,388 | 1,675 | 42 | 18 | 17,593 |
| 2008 | 8,067 | 2,806 | 2,243 | 356 | 1,303 | 1,973 | 43 | 14 | 16,805 |
| 2009 | 7,675 | 2,621 | 2,093 | 312 | 1,075 | 1,497 | 18 | 14 | 15,305 |
| 2010 | 6,972 | 2,463 | 1,845 | 273 | 992 | 1,229 | 44 | 13 | 13,831 |

## 3.2 Water Use Targets

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

- Step 1 – Calculate the baseline per capita water use, using the required methodologies.
- Step 2 – Calculate the per capita reduction using at least one of the four methodologies (including the minimum reduction target – which is a provision included to ensure all agencies achieve a minimum level of water savings).
- Step 3 – Select the target reduction methodology and set interim (2015) and compliance (2020) water use targets. The chosen methodology is the responsibility of the water supplier and may be changed in 2015.

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

### 3.2.1 Baseline Per Capita Water Use

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

1. Baseline Method 1 – Average water use over a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010.
2. Baseline Method 2 – For retailers with at least 10 percent of 2008 demand served by recycled water (either retail- or wholesale-provided), this calculation may be extended to include an additional 5 years ending no earlier than December 31, 2004 and no later than December 31, 2010.
3. Baseline Method 3 – Estimate of average gross water use reported in gpcd and calculated over a continuous 5-year period ending no earlier than December 31, 2007 and no later than December 31, 2010.

The Baseline Methods 1 and 3 were calculated using GSWC supply data for the years ending December 31, 1999 through December 31, 2010. The base water use was calculated for each year commencing with 1999 as this was the first year with production data records available. The West Orange system does not currently receive more than 10 percent recycled water;

therefore Baseline Method 2 is not applicable. Table 3-2 below presents the base period ranges, total water deliveries and the volume of recycled water delivered in 2008; these data are used to determine the number of years that can be included in the base period range. Also shown are the actual start and end years for the selected base period range.

Table 3-2: Base Period Ranges

| Base | Parameter | Value | Units |
|---|---|---|---|
| 10-year base period | 2008 total water deliveries | 17,886 | Ac-ft |
| | 2008 total volume of delivered recycled water | 0 | Ac-ft |
| | 2008 recycled water as a percent of total deliveries | 0 | Percent |
| | Number of years in base period | 10 | Years |
| | Year beginning base period range | 1997 | |
| | Year ending base period range | 2006 | |
| 5-year base period | Number of years in base period | 5 | Years |
| | Year beginning base period range | 2004 | |
| | Year ending base period range | 2008 | |

Note:
Table format based on DWR Guidebook Table 13.

The average annual daily per capita water use in gpcd from 1997 through 2010 is provided in Table 3-3. The gallons per day calculation includes potable water entering the distribution system.

Table 3-3: 1997-2010 Base Daily Use Calculation

| Calendar Year | Distribution System Population | Gallons / Day | Daily per Capita Water Use, gpcd |
|---|---|---|---|
| 1997 | 106,921 | 17,113,365 | 160 |
| 1998 | 106,813 | 15,992,802 | 150 |
| 1999 | 107,187 | 16,494,888 | 154 |
| 2000 | 107,178 | 16,795,906 | 157 |
| 2001 | 107,858 | 16,156,689 | 150 |
| 2002 | 108,250 | 16,871,163 | 156 |
| 2003 | 109,016 | 15,931,818 | 146 |
| 2004 | 109,422 | 16,318,003 | 149 |
| 2005 | 109,516 | 15,786,235 | 144 |

| Table 3-3: 1997-2010 Base Daily Use Calculation | | | |
|---|---|---|---|
| **Calendar Year** | **Distribution System Population** | **Gallons / Day** | **Daily per Capita Water Use, gpcd** |
| 2006 | 109,967 | 16,093,058 | 146 |
| 2007 | 110,706 | 16,618,034 | 150 |
| 2008 | 110,782 | 15,967,285 | 144 |
| 2009 | 111,237 | 14,899,665 | 134 |
| 2010 | 111,418 | 13,646,496 | 122 |

Note:
Table format based on DWR Guidebook Tables 14 and 15.

The 10-year averages available for GSWC to select are presented in Table 3-4; and the 5-year averages are shown in Table 3-5. The 1997-2006 10-year and 2004-2008 5-year average base daily gpcd usages of 151 and 147 gpcd, respectively, were selected.

| Table 3-4: 10-Year Average Base Daily Per Capita Water Use | |
|---|---|
| **10-Year Period** | **Average Base Daily Per Capita Water Use (gpcd)** |
| 1997-2006 | 151 |
| 1998-2007 | 150 |
| 1999-2008 | 150 |
| 2000-2009 | 148 |
| 2001-2010 | 144 |

| Table 3-5: 5-Year Average Base Daily Per Capita Water Use | |
|---|---|
| **5-Year Period** | **Average Base Daily Per Capita Water Use (gpcd)** |
| 2003-2007 | 147 |
| 2004-2008 | 147 |
| 2005-2009 | 144 |
| 2006-2010 | 139 |

### 3.2.2 Urban Water Use Targets

Retail suppliers must identify their urban water use targets by utilizing one of four compliance methods identified in SBX7-7. The four urban water use target development methods are as follows:

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

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

**Compliance Method 1 Calculation Summary**

The Compliance Method 1 2020 water use target was calculated by multiplying the base daily gpcd by 80 percent. A 20 percent reduction in baseline water use would require reduction of 39 gpcd by 2020 as shown in Table 3-6. The 2015 interim target would be 176 gpcd with a 2020 water use target of 156 gpcd.

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

| Description | Baseline | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|
| Per Capita Water Use (gpcd) | 151 | 136 | 121 |
| Percent Reduction | N/A | 10% | 20% |

**Compliance Method 3 Calculation Summary**

The Compliance Method 3 2020 water use target was calculated by multiplying the respective hydrologic region target by 95 percent. The West Orange System is located in the South Coast region (Region 4), which has a hydrologic region target of 149 gpcd and a baseline water use of 180 gpcd. Ninety-five (95) percent of the Region 4 hydrologic region target results in a 2020 water use target of 142 gpcd. Since the baseline of 151 gpcd is greater than 95 percent of the

hydrologic regional target of 142 gpcd, a review of the minimum reduction target was triggered per the DWR methodologies. Table 3-7 presents the results of the Method 3 calculation:

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

| Description | Baseline | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|
| Per Capita Water Use (gpcd) | 151 | 146 | 142 |
| Percent Reduction | N/A | 3% | 6% |

**Minimum Compliance Reduction Target**

Systems with a 5-year baseline per capita water use of greater than 100 gpcd must calculate a minimum water use reduction, which the 2020 water use target cannot exceed. The minimum water use reduction compliance target is 95 percent of the 5-year average base daily per capita water use (ending no earlier than December 31, 2007, and no later than December 31, 2010). By this method, the minimum 2020 water use target for the West Orange System is 140 gpcd, as presented in Table 3-8 below:

Table 3-8: Minimum 2020 Reduction

| Description | 5-Yr Average | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|---|
| Minimum Allowable 2020 Target (gpcd) | 147 | 144 | 140 |

### 3.2.3 Interim and Compliance Water Use Targets

The interim and compliance water use targets are provided per Section 10608.20(e) of the Act. Compliance Method 3 was selected by GSWC for the West Orange System, which in turn triggered the minimum reduction target since the Method 3 hydrologic region target (142 gpcd) is greater than the minimum 140 gpcd. As a result, Table 3-9 shows the 2020 SBX7-7 compliance target for the West Orange System is 140 gpcd and the 2015 interim water use target is 144 gpcd. The implementation plan for achieving these targets is described in Section 4.8, Recycled Water and Chapter 7, Demand Management Measures.

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

| Baseline | 2015 Interim Target | 2020 Compliance Target |
|---|---|---|
| 151 | 144 | 140 |

## 3.3 Projected Water Use

Growth projections for the number of service connections and volume of water use were calculated for the year 2015 through 2035, in 5-year increments. Future water demands were estimated using two different methods, a population-based approach and a historical-trend approach, in order to present a projection range reflecting the inherent uncertainty in growth trends. Additionally, demand projections are provided showing a scenario where the West Orange System fully meets water use target reductions by 2020 for comparison to current per capita water use trends. Detailed descriptions of how the population-based and historical-trend projections were calculated are provided below.

The range established between these two approaches is intended as supplemental information; all connection and demand estimates us the population-based growth rate projections, which are higher and provide a more conservative estimate of future water use. The historical-trend projections are provided as ancillary information only.

Figure 3-2 shows the historical and projected number of metered service connections for the West Orange System from 1994 through 2035. Figure 3-3 shows the historical and projected water use for the West Orange System from 1994 until 2035.

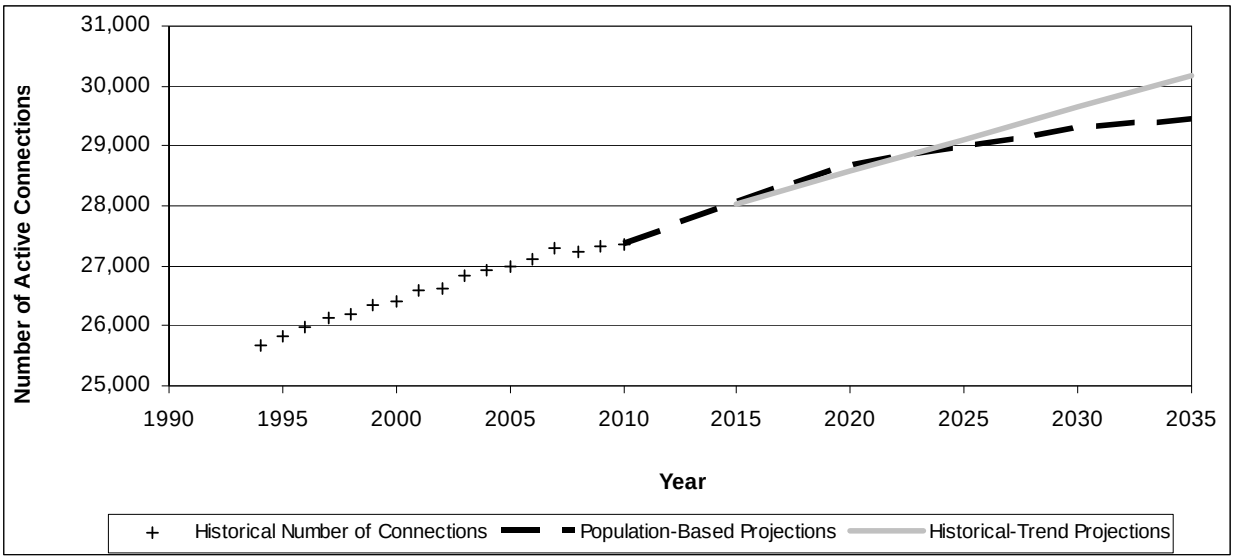



Figure 3-2: Historical and Projected Number of Metered Service Connections

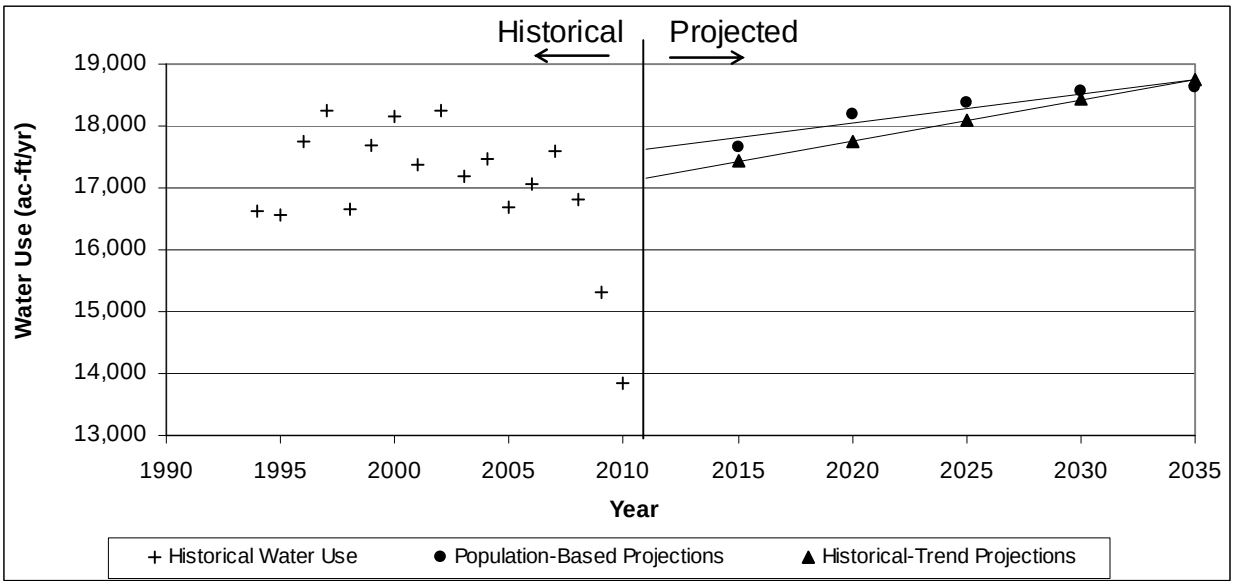



Figure 3-3: Historical Water Use and Future Water Use Projections

Historical water use records from 2000 through 2010 were analyzed to generate estimates of future water demands. Water use factors were then developed for the projection of future water use. A water use factor for each category was calculated in order to quantify the average water used per metered connection. For a given customer type, the unit water use factor is calculated as the total water sales for the category divided by the number of active service connections for that category. The unit water use factors for each customer type were averaged over the data range from 2000 through 2010 in order to obtain a representative water use factor for determining water demand projections by customer type. Table 3-10 presents the water use factors calculated for each customer category.

Table 3-10: Water Use Factors for the West Orange System

| | Account Category | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Single-Family | Multi-Family | Commercial | Industrial | Institutional/ Government | Landscape | Agriculture | Other[2] |
| Water Use Factor[1] | 0.36 | 2.54 | 1.52 | 1.06 | 8.14 | 2.34 | 16.89 | 0.79 |

Notes:

1. Based on customer water use data for calendar years 2000-2010.
2. Other accounts for any service connections not included in any other category, including idle or inactive connections.

The population-based water use projections are based on the population and housing growth rates described in Chapter 2. SCAG household projections were used to determine the growth in single-family and multi-family service connections for the years 2015, 2020, 2025, 2030, and 2035. For example, the percent growth rate in households from the year 2010 to year 2015 was multiplied by the number of residential service connections in 2010 to obtain a projection of the number of connections in the year 2015. Similarly, employment growth projections were used to determine the growth for commercial, industrial, institutional/government, landscape, and agriculture service connections. The population-based projected water use was then calculated by multiplying the number of projected active service connections for each customer category by the corresponding customer average water use factor calculated above.

The historical-trend water use projections are based on a linear projection of the historical number of metered service connections. The average growth rate established by this historical trend was applied to the number of connections in each customer category to project the future number of service connections. The historical-trend projected water use was then calculated by multiplying the number of projected active service connections for each customer category with the corresponding customer average water use factor calculated above.

Figure 3-4 shows the population based water use projections by customer type. The population-based projections of the number of service connections, and the resulting water demand, are provided in Table 3-11.

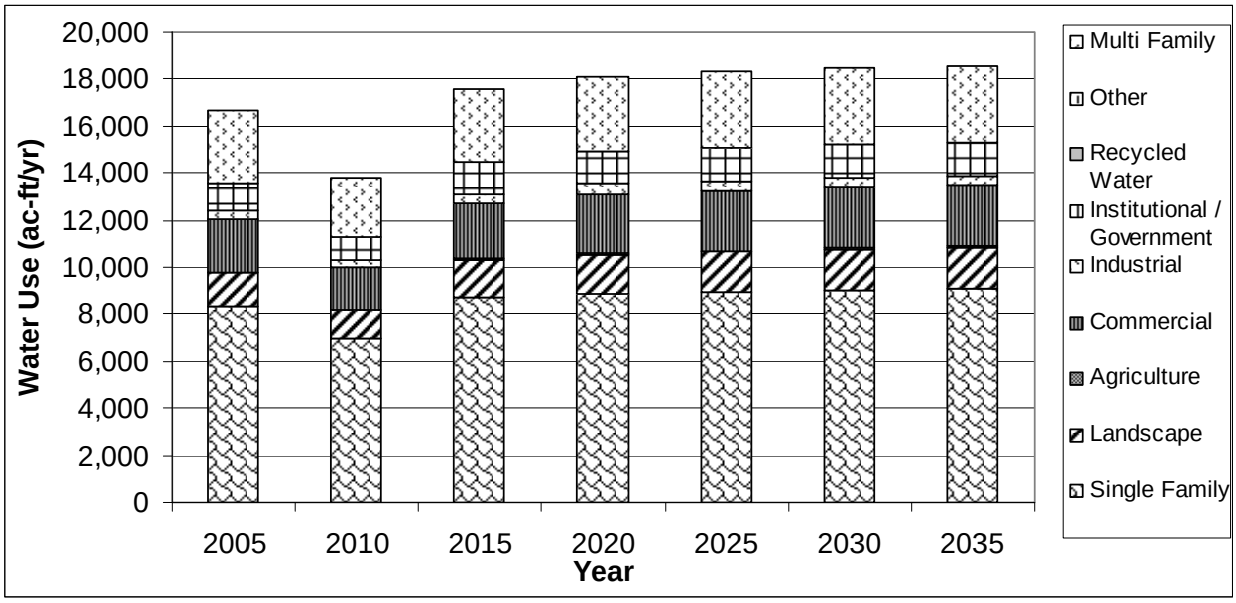



Figure 3-4: Projected Water Use by Customer Type

| Table 3-11: Projections of the Number of Metered Service Connections and Water Use for the West Orange System | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Accounts by Type | | | | | | | | |
| Year | Projection Type | Single-Family | Multi-Family | Commercial | Industrial | Institutional/ Government | Landscape | Agriculture | Other[3] | Total |
| 2005[2] | *No. of Accounts* | 23,108 | 1,199 | 1,515 | 326 | 151 | 676 | 3 | 17 | 26,995 |
| | *Water Use (ac-ft)* | 8,381 | 3,091 | 2,321 | 356 | 1,099 | 1,398 | 33 | 10 | 16,689 |
| 2010 | *No. of Accounts* | 23,531 | 1,198 | 1,493 | 327 | 152 | 648 | 2 | 19 | 27,370 |
| | *Water Use (ac-ft)* | 6,972 | 2,463 | 1,845 | 273 | 992 | 1,229 | 44 | 13 | 13,831 |
| 2015 | *No. of Accounts* | 24,000 | 1,222 | 1,601 | 351 | 163 | 695 | 3 | 21 | 28,056 |
| | *Water Use (ac-ft)* | 8,713 | 3,106 | 2,441 | 373 | 1,327 | 1,623 | 51 | 17 | 17,651 |
| 2020 | *No. of Accounts* | 24,450 | 1,245 | 1,685 | 369 | 172 | 732 | 3 | 22 | 28,678 |
| | *Water Use (ac-ft)* | 8,875 | 3,165 | 2,569 | 392 | 1,401 | 1,710 | 51 | 17 | 18,180 |
| 2025 | *No. of Accounts* | 24,719 | 1,259 | 1,702 | 373 | 174 | 739 | 3 | 22 | 28,991 |
| | *Water Use (ac-ft)* | 8,973 | 3,201 | 2,595 | 396 | 1,417 | 1,726 | 51 | 17 | 18,376 |
| 2030 | *No. of Accounts* | 24,964 | 1,271 | 1,720 | 377 | 176 | 747 | 3 | 22 | 29,280 |
| | *Water Use (ac-ft)* | 9,063 | 3,231 | 2,622 | 400 | 1,433 | 1,745 | 51 | 17 | 18,562 |
| 2035 | *No. of Accounts* | 25,108 | 1,279 | 1,722 | 377 | 176 | 748 | 3 | 22 | 29,435 |
| | *Water Use (ac-ft)* | 9,116 | 3,251 | 2,625 | 400 | 1,433 | 1,747 | 51 | 17 | 18,640 |

Notes:

1. This table is based on the DWR Guidebook Tables 3 through 7.
2. Based on calendar year.
3. Other accounts for any service connections not included in any other category, including idle or inactive connections.
4. All connections are metered.

## 3.4 Sales to Other Agencies

There are no anticipated sales to other agencies for the West Orange System; therefore, Table 3-12 has intentionally been left blank.

Table 3-12: Sales to Other Agencies in ac-ft/yr

| Water Distributed | 2005[2] | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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

## 3.5 Other Water Uses and System Losses

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

System losses must be incorporated when projecting total water demand. System losses (also known as non-revenue water) are defined as the difference between annual water production and annual sales. Included are system losses due to leaks, reservoir overflows, or inaccurate meters, and other water used in operations such as system flushing and filter backwashing. GSWC does not tabulate system losses separately from other water uses such as operations. In the West Orange System, from 2000 through 2010, system water losses have averaged 5.4 percent of the total production; therefore, this rate was incorporated into water demand projections. Table 3-13 provides a summary of projected system losses in the West Orange System.

Table 3-13: Additional Water Uses and Losses in ac-ft/yr

| Water-Use Type | 2005[2] | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| Other Water Uses | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Unaccounted-for System Losses[3] | 994 | 1,456 | 951 | 980 | 990 | 1,000 | 1,004 |
| **Total** | 994 | 1,456 | 951 | 980 | 990 | 1,000 | 1,004 |

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

## 3.6 Total Water Demand

As described above, other water uses, as well as any water lost during conveyance, must be added to the customer demand in order to project total water demand for the West Orange System. Although there are no other water uses contributing to the total water demand in the West Orange System, other water uses and system water losses must be incorporated into the total water demand. Table 3-14 summarizes the projections of water sales, other water usage and system losses, and total water demand through the year 2035.

The projected water sales and system losses were added to estimate the total baseline water demand shown in Table 3-14. The baseline demand projections below do not include water use reductions due to additional implementation of future DMMs or other conservation activities. Baseline demands are used for supply reliability evaluation purposes throughout this UWMP for estimates of water supplies that may be required to meet system demands for the next 25 years. Figure 3-5 shows the projected total water demand through 2035.

Projected water demands assuming full compliance with the SBX7-7 interim and 2020 water use reduction targets are also provided in the Table 3-14 and Figure 3-5 for reference purposes. SBX7-7 compliance water demands were calculated by multiplying the projected population by the applicable water use target. Future water use that is exempt from SBX7-7, such as industrial process water or direct reuse recycled water is not included in this projection.

Table 3-14: Projected Total Water Demand and SBX7-7 Compliance Projections in ac-ft/yr

| Year[2] | Projected Water Sales | Other Water Uses and System Losses | Total Baseline Water Demand | SBX7-7 Compliance Projections | |
|---|---|---|---|---|---|
| | | | | Water Savings | Total Water Demand with Savings |
| 2005 | 16,689 | 994 | 17,683 | 0 | N/A |
| 2010 | 13,831 | 1,456 | 15,287 | 0 | N/A |
| 2015 | 17,651 | 951 | 18,602 | 106 | 18,496 |
| 2020 | 18,180 | 980 | 19,160 | 638 | 18,522 |
| 2025 | 18,376 | 990 | 19,366 | 541 | 18,826 |
| 2030 | 18,562 | 1,000 | 19,562 | 457 | 19,105 |
| 2035 | 18,640 | 1,004 | 19,645 | 435 | 19,210 |

Notes:

1. This table is based on the DWR Guidebook Table 11.
2. Based on calendar year.

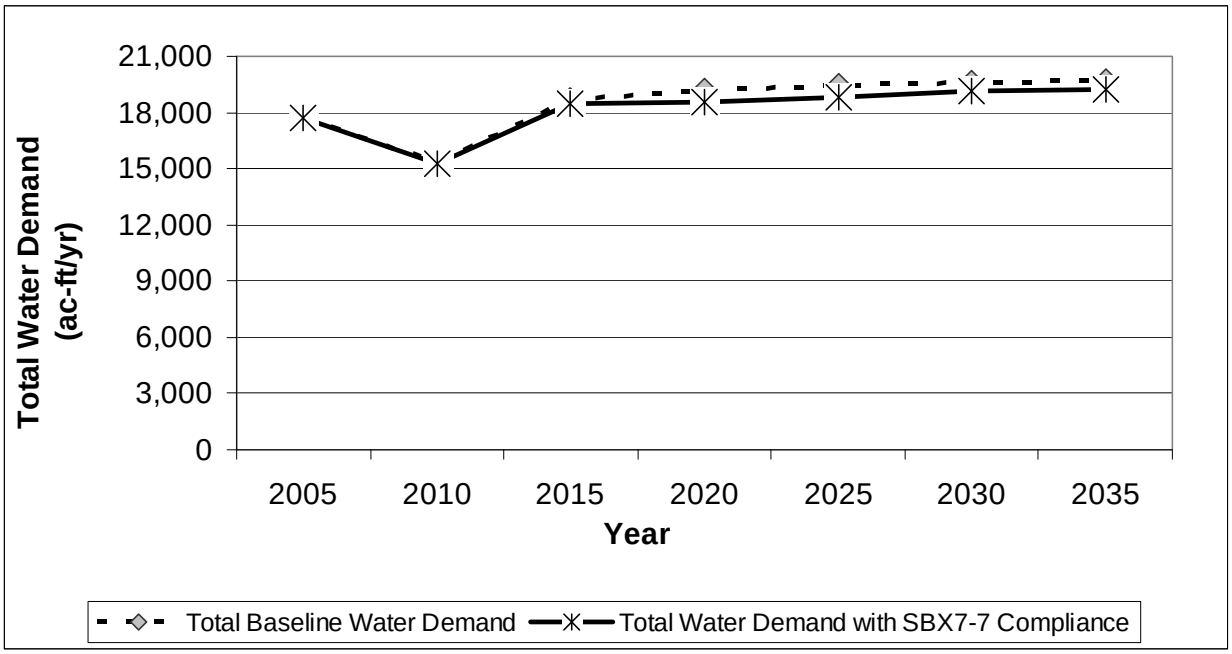



Figure 3-5: Total Water Demand

## 3.7 Data Provided to Wholesale Agency

GSWC provided the following projected water use data to the Municipal Water District Orange County, its wholesale water supplier for the West Orange System, as summarized in Table 3-15. Since the preliminary projections were submitted to 2010, GSWC has refined projections by integrating actual 2010 water use and supply data. As a result, the projections shown in Table 3-15 below do not agree with the demands presented in other chapters of this UWMP. As required per Section 10631(k) the supporting documentation providing the water use projections to the wholesale agency is included in Appendix I.

Table 3-15: Summary of West Orange System Data Provided to MWDOC in ac-ft/yr

| Wholesaler | Contracted Volume | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| MWDOC | N/A | 19,416 | 20,133 | 20,750 | 20,961 | 21,173 | 21,267 |

Note:
This table is based on the DWR Guidebook Table 12.

## 3.8 Disadvantaged Community Water Use Projections

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

Senate Bill 1087 requires that water use projections of a UWMP include the projected water use for single-family and multi-family residential housing 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.

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

The County of Orange last updated its housing element in 2011. A lower income house is defined as 80 percent of median income, adjusted for family size. The County's housing element identifies the target number of low-income households in the County from 2006 to 2013 as 18.1 percent and very low-income households as 22.3 percent. However, it is unknown what percentage of the low-income and very low-income households are within GSWC's West Orange service area. For this reason, it is not possible to project water use for lower income households separately from overall residential demand. However, to remain consistent with the intent of the SB-1087 legislation and to comply with the UWMP Act, an effort has been made to identify those water use projections for future single and multi-family households based on the aggregate percentage of both the low-income and very low-income categories. 40 percent was used to estimate the lower income demand projections as shown in Table 3-16 below.

Table 3-16: Low-Income Projected Water Demands in ac-ft/yr

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Single-Family Residence | 703 | 769 | 808 | 844 | 865 |
| Multi-Family Residence | 260 | 284 | 298 | 310 | 319 |
| Total | 963 | 1,053 | 1,107 | 1,155 | 1,184 |

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

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

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

THIS PAGE INTENTIONALLY BLANK

# Chapter 4: Water Supply

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

*Section 10631.*

*(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*

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

*(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.*

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

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

*(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

*(A) An average water year.*

*(B) A single dry water year.*

*(C) Multiple dry water years.*

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

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

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

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

## 4.1 Water Sources

GSWC obtains its water supply for the West Orange System from two primary sources: imported water and GSWC operated groundwater wells. Imported water is purchased by the Municipal Water District of Orange County (MWDOC). MWDOC obtains its water supply from the Metropolitan Water District of Southern California (Metropolitan).

GSWC operates several groundwater wells within the Orange County Groundwater Basin (Basin). The Basin is managed by the Orange County Water District (OCWD). The OCWD regulates the amount of groundwater pumped from the Basin and sets the Basin Production Percentage (BPP) for all pumpers. GSWC pumps groundwater from the Basin for four of its systems including the West Orange System.

Table 4-1, below, summarizes the current and planned water supplies available to GSWC for the West Orange System that will meet their projected demands in normal years. This water supply summary is based on an analysis of local groundwater supplies and data provided by MWDOC. The groundwater quantities are based on the Basin Production Percentage (BPP) of 62 percent; this is further discussed in Section 4.3.1 below.

Historically, groundwater has comprised between 42 percent and 83 percent of the total water supply for the West Orange System and the remainder has been provided by imported water from MWDOC. In the future, groundwater is expected to be approximately 62 percent of the West Orange System's total supply. There is no direct use of recycled water within this system.

Table 4-1: Current and Planned Water Supplies for the West Orange System in ac-ft/yr

| Source | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|
| Imported water from MWDOC | 4,982 | 7,069 | 7,281 | 7,359 | 7,434 | 7,465 |
| Imported water from City of Seal Beach | 45 | 0 | 0 | 0 | 0 | 0 |
| Groundwater(1) | 10,260 | 11,533 | 11,879 | 12,007 | 12,129 | 12,180 |
| Recycled water | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 15,287 | 18,602 | 19,160 | 19,366 | 19,562 | 19,645 |

Notes:
1. Based on projected use in the Orange County Groundwater Basin assuming a BPP of 62 percent of total demand.
2. 2010 water supplies are based on actual production records.
3. Table format based on DWR Guidebook Table 16.

GSWC's water supply is projected to increase by approximately 14 percent from 2010 to 2035 to meet associated project water demands, with this demand being met by imported water from MWDOC and increased groundwater extractions. Water demand projections are documented in Chapter 3. The sources and reliability of supply are briefly described below, and detailed descriptions follow in subsequent sections.

**Imported water:** Includes imported water from Metropolitan delivered through MWDOC and a small amount of water from the City of Seal Beach.

**Groundwater:** The groundwater source consists of the water projected to be pumped from the Orange County Groundwater Basin.

**Recycled water:** There are currently no sources for recycled water for the West Orange system. The potential for future recycled water use is described in Section 4.8.

## 4.2 Imported Water

MWDOC provides water to several agencies including GSWC. MWDOC obtains its water from Metropolitan, and is largely a pass-through provider of Metropolitan's imported water. GSWC obtains water from MWDOC for several systems including the West Orange System. GSWC is entitled to purchase imported water from MWDOC, if water is available, but has no right to purchase a firm quantity (see Water Code § 71611). There is no water purchase contract between GSWC and MWDOC. Water imported from the MWDOC is delivered to the West Orange System through the following connections:

- MWDOC OC-26 connection with a capacity of 4,500 gallons per minute (gpm).
- MWDOC OC-55 connection with a capacity of 11,200 gpm.
- MWDOC OC-61 connection with a capacity of 9,000 gpm.

These connections have a combined active design capacity of 24,700 gpm. All of these connections can be supplied by Metropolitan's Jensen, Weymouth, or Diemer Filtration Plants. In addition, GSWC has three emergency connections:

- GSWC's Artesia System connection with a capacity of 1,500 gpm.
- City of Garden Grove connection with a capacity of 1,500 gpm.
- City of Buena Park connection with a capacity of 1,500 gpm.

These emergency connections have a combined design capacity of 4,500 gpm. Three reservoirs with a volume of 4.5 million gallons serve as storage in the West Orange System.

## 4.3 Groundwater

Currently, groundwater is pumped from a total of sixteen active wells in the Orange County Groundwater Basin. These wells have a current total active capacity of 18,954 acre-feet/yr (ac-ft/yr). Between 2005 and 2010, the actual production averaged 10,674 ac-ft/yr.

The Orange County Groundwater Basin has a surface area of approximately 224,000 acres (350 square miles). The Basin is bounded by the Puente and Chino Hills in the north, Santa Ana Mountains on the east, the San Joaquin Hills on the south, and the Pacific Ocean on the west.

The water-bearing units within the Orange County Basin are interbedded marine and continental sand, silt, and clay, with the units fining towards the coast (DWR, 2003). Three primary aquifer systems underlie the Orange County Basin: The Shallow Aquifer System, Principal Aquifer System, and Deep Aquifer System (OCWD, 2009). These three aquifer systems extend over 2,000 feet below ground surface. The Shallow Aquifer System (SAS), comprised of upper Pleistocene to Holocene deposits of unconsolidated sand and gravel, is represented by the La Habra Formation with an average thickness of about 800 feet. The SAS is predominately used for small-system industrial and agricultural uses within the Orange County Basin. The Principal

Aquifer System (PAS) includes the lower Pleistocene Coyote Hills and San Pedro Formations. These formations typically average 1,600 feet in thickness and consist of sand, gravel, and minor amounts of clay. Well yields for the PAS typically average 2,000 to 3,000 gpm. The PAS provides approximately 90 to 95 percent of the groundwater for the Basin (OCWD, 2009). The Deep Aquifer System (DAS) includes the upper Pliocene aged Upper Fernando Group and consists of 350 feet to 500 feet of sand and gravel. Water within the DAS is not produced extensively. Those aquifers within the Deep Aquifer System have produced colored water or have been too deep to economically construct production wells (OCWD, 2009).

Recharge to the Basin is generally from the Santa Ana River, precipitation, and injection via wells along the Talbert Barrier, a seawater intrusion barrier. Most of the recharge for the Basin occurs in the forebay, located along the eastern margin of the basin, which is characterized by highly permeable sands and gravels with few discontinuous clay and silt deposits (OCWD, 2009). Little recharge occurs in the pressure area, which is characterized by an area where there are abundant clays and silts that prevent significant recharge (OCWD, 2009).

Table 4-2 shows GSWC's wells and current well capacities for the West Orange System. The total current active well capacity for GSWC's West Orange System is 11,750 gpm (18,954 ac-ft/yr).

Table 4-2: Well Name and Capacity

| Well Name | Current Well Capacity (gpm)[1] | Current Well Capacity (ac-ft/yr) |
|---|---|---|
| Ball | 950 | 1,532 |
| Beach | 900 | 1,452 |
| Bloomfield | 1,330 | 2,145 |
| Cherry No. 3 | 290 | 468 |
| Claire No. 4 | 0 | 0 |
| Claire No. 5 | 0 | 0 |
| Dale | 420 | 678 |
| Florista | 1,030 | 1,662 |
| Howard | 870 | 1,403 |
| Lowden | 190 | 306 |
| Lowell | 0 | 0 |
| Orangewood | 680 | 1,097 |
| Santa Paula | 0 | 0 |
| S Cypress | 650 | 1,049 |
| Sherrill | 640 | 1,032 |
| Simone | 0 | 0 |
| Sycamore-Fern | 420 | 678 |

| Table 4-2: Well Name and Capacity | | |
|---|---|---|
| **Well Name** | **Current Well Capacity (gpm)[1]** | **Current Well Capacity (ac-ft/yr)** |
| Valley View No. 1 | 300 | 484 |
| Valley View No. 2 | 2,360 | 3,807 |
| Yellowtail | 720 | 1,161 |
| **Total Capacity** | **11,750** | **18,954** |

Note:

1. Estimated annual average current well production capacity is provided; actual and design instantaneous pumping capacity may be greater for each well.

Table 4-3 shows the groundwater pumping history for the West Orange System for calendar years (January 1 – December 31) 2005 to 2010. In 2006, 39 percent of the water used by the West Orange System came from groundwater. This was increased to 73 percent by 2007. The reduced pumping in 2005 and 2006 resulted from GSWC's volunteer participation in an in-lieu program that allowed purchase of Metropolitan water at the same rate as it cost GSWC to pump groundwater. The purpose of this program was to temporarily reduce pumping to allow the groundwater basin to refill.

| Table 4-3: Groundwater Pumping History by West Orange System (2005 to 2010) in ac-ft | | | | | | |
|---|---|---|---|---|---|---|
| **Basin Name** | **2005** | **2006** | **2007** | **2008** | **2009** | **2010** |
| Orange County | 5,842 | 7,108 | 13,780 | 13,995 | 13,058 | 10,260 |
| Percent of Total Water Supply | 33% | 39% | 73% | 78% | 78% | 67% |

Notes:

1. Table format based on DWR Guidebook Table 18.
2. Years are reported in calendar years (January 1 – December 31).

The projected volume of groundwater needed to supply the West Orange System through 2035 is shown in Table 4-4. MWDOC is projecting that planned and future water supply projects in the basin will allow pumpers to operate reliably with a BPP of approximately 62 percent from 2010 through 2035. The BPP applies to all GSWC-owned systems in the Orange County Groundwater Basin. The projected BPP of 62 percent may be slightly exceeded in the West Orange System to offset under-pumping in other systems.

| Table 4-4: Projected Groundwater Pumping Amounts by West Orange System to 2035 in ac/ft | | | | | | |
|---|---|---|---|---|---|---|
| **Basin Name** | **2010** | **2015** | **2020** | **2025** | **2030** | **2035** |
| Orange County | 10,260 | 11,533 | 11,879 | 12,007 | 12,129 | 12,180 |
| Percent of Total Water Supply | 67% | 62% | 62% | 62% | 62% | 62% |

Notes:
1. Table format based on DWR Guidebook Table 19.
2. Years are reported in calendar years (January 1 – December 31).

### 4.3.1 Orange County Groundwater Basin Management

The Basin is managed by the Orange County Water District (OCWD). The Orange County Groundwater Basin is the only major non-adjudicated groundwater basin in Southern California. OCWD has the power to set production limits, regulate and control the storage of water and use of underground storage space, and control conditions in-lieu contracts. Many of these groundwater management strategies have been implemented by OCWD over the past 50 years to monitor and control increased groundwater pumping, recharge the basin, and control seawater intrusion. The most recent details of OCWD's measures to manage the basin can be found in 2009 Groundwater Management Plan Update for the Orange County Groundwater Basin, which is provided in Appendix F.

The Basin is managed through financial incentives, based on uniformly establishing the Basin Production Percentage (BPP) for all pumpers in the Basin. The BPP is the ratio of groundwater production to total water demand, expressed as a percentage. OCWD evaluates groundwater conditions in the Basin and sets the BPP annually, for the following fiscal year (July 1 – June 30). Over the last 25 years, the BPP has ranged from 62 percent to 80 percent, averaging approximately 70 percent. Historically, the BPP has been raised if drought conditions affect the reliability or increased price of imported water and it has been lowered to prevent the threat of seawater intrusion resulting from lowered groundwater levels in the Basin (OCWD, 2009).

Until 2007, OCWD used groundwater-level elevations from November 1969 as the baseline to represent near-full conditions within the Basin. A new methodology was developed to calculate accumulated overdraft and storage change. The need for this new methodology was driven by the record-setting wet year of 2004-05, in which an unprecedented storage increase of 170,000 ac-ft was estimated by OCWD staff. OCWD has estimated that 66,000,000 ac-ft of fresh water are stored in the Orange County Basin aquifer systems when the Basin is full. The February 2007 revised approach now defines a full basin on multiple factors including groundwater levels and calculations of the amount of groundwater in storage in each of the three major aquifer systems (OCWD, 2009). OCWD estimates that the Basin can be operated with an accumulated storage reduction (from 1969 levels) of 500,000 ac-ft without causing irreversible seawater intrusion and land subsidence. Groundwater levels tend to be declining in the pressure area due to the lack of recharge, whereas, groundwater levels tend to be stable in the forebay (DWR, 2003). To help provide sufficient water supplies during a period of imported SWP deliveries to the Basin by increasing groundwater extractions, the BPP was increased from 70 percent in FY 2006-2007 to 80 percent in FY 2007-2008.

Orange County Water District does not set specific pumping rights for the Basin, but instead annually adjusts the BPP for the Basin. Groundwater supply projections for all of GSWC's systems within the Orange County Basin are based on data provided by OCWD with a projected BPP of 62 percent of their projected total demand. The BPP applies to all GSWC-owned systems in the Orange County Groundwater Basin. The projected BPP of 62 percent may be slightly exceeded in the West Orange System to offset under pumping in other systems.

Orange County Sanitation District (OCSD) in conjunction with OCWD has implemented the Groundwater Replenishment System (GWRS). The GWRS will result in the reuse of up to 130 mgd of highly treated wastewater. The GWRS will augment existing groundwater supplies through indirect potable reuse, providing a reliable, high-quality source of recharge water for the Basin (OCWD, 2009). Additionally, the GWRS will provide water for direct injection at the Talbert Barrier, reducing the dependence on imported water for injection.

The first phase of the GWRS increased the reliability of local groundwater by producing a total of 72,000 ac-ft/yr of water for recharge. The first phase of the GWRS was completed in 2007. The second phase of the GWRS is expected to be completed by 2014, resulting in a total recharge capacity of 103,000 ac-ft/yr.

## 4.4 Transfers and Exchanges

There are no planned transfer and/or exchange opportunities in the West Orange System at this time; therefore, Table 4-5 has been left blank.

Table 4-5: Transfer and Exchange Opportunities

| Source Transfer Agency | Transfer or Exchange | Short Term | Proposed Quantities | Long-Term | Proposed Quantities |
|---|---|---|---|---|---|
| GSWC | N/A | N/A | N/A | N/A | N/A |

Note:
Table format based on DWR Guidebook Table 20.

## 4.5 Planned Water Supply Projects and Programs

GSWC, as a part of its normal maintenance and operations, will construct new wells, pipelines, and treatment systems as needed as a part of its ongoing Capital Investment Program to maintain its supply and meet distribution system requirements. MWDOC is participating in a number of water supply development programs, the details of which can be found in MWDOC's 2010 Urban Water Management Plan. MWDOC's dependence on imported water may decrease with the expansion of these alternative resources.

A potential long-term water supply transfer opportunity that GSWC is evaluating is the Cadiz Valley Water Conservation, Recovery and Storage Project (Cadiz Project). The project is designed to capture and conserve thousands of acre-feet of native groundwater currently being lost to evaporation through an aquifer system beneath Cadiz's property in eastern San Bernardino County, California. By implementing established groundwater management practices, the project will create a new, sustainable annual water supply for project participants. In addition, the project offers storage capacity that can be used by participants to carry-over – or

"bank" – annual supplies, without the high rates of evaporative loss suffered by local surface reservoirs.

The Cadiz Project will produce up to 50,000 ac-ft/yr for fifty years. GSWC is one of five entities that have expressed an interest in receiving water from the project. In 2009, GSWC signed a letter of intent to purchase up to 5,000 ac-ft/yr and committed to paying a share of the cost of the project's environmental evaluation. GSWC continues to evaluate the economics and technical feasibility of this project. Table 4-6 shows the potential water supply that could be provided by the Cadiz Project.

Table 4-6: Future Water Supply Projects in ac-ft

| Project Name | Normal Year | Single-Dry Year | Multiple-Dry Years | | |
|---|---|---|---|---|---|
| | | | Year 1 | Year 2 | Year 3 |
| Cadiz Project | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |

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

## 4.6 Wholesale Agency Supply Data

Table 4-7 provides MWDOC's existing and planned water sources available to the West Orange System for normal years. These supplies are expected to meet the projected imported water demands.

Table 4-7: Existing and Planned Wholesale Water Sources in ac-ft/yr

| Wholesaler Sources | Contracted Volume | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| MWDOC | | 4,982 | 7,069 | 7,281 | 7,359 | 7,434 | 7,465 |

Note:
This table is based on DWR Guidebook Table 17.

The reliability of wholesale water supply available to meet annual water demand under an average, single-dry, and multiple-dry year condition for the West Orange System is provided in Table 4-8. The table includes a single-dry year and multiple-dry year supplies for year 2035. The available supply from MWDOC is higher than the supply needed to meet demands during various hydrologic conditions.

During a single-dry and multiple-dry years, MWDOC is expected to increase their imported demand to make up for the decrease in local supplies. MWDOC is assured by Metropolitan of 100 percent reliability to meet the water demand through 2035. It should also be noted that the available active connection capacity for imported water is much more than the supply quantities required to meet the projected water demands during various hydrologic conditions.

| Table 4-8: Reliability of Wholesale Supply for Year 2035 in ac-ft/yr | | | | | |
|---|---|---|---|---|---|
| | | | Multiple-Dry Water Years | | |
| Wholesaler | Average / Normal Water Year Supply | Single-Dry | Year 1 | Year 2 | Year 3 |
| MWDOC | 7,465 | 7,465 | 7,465 | 7,465 | 7,465 |
| Percent Normal | | 100 | 100 | 100 | 100 |

Note:
Table format based on DWR Guidebook Table 31.

Table 4-9 lists factors affecting wholesale supply for the West Orange System. Metropolitan intends to supply 100 percent supply reliability to MWDOC, which in turn provides 100 percent reliability of supply to the West Orange System. Additional discussion of factors that were evaluated in ensuring supply reliability can be found in MWDOC's 2010 UWMP and Metropolitan's 2010 Regional UWMP.

| Table 4-9: Factors Affecting Wholesale Supply | | | | |
|---|---|---|---|---|
| Name of Supply | Legal | Environmental | Water Quality | Climatic |
| MWDOC | N/A | N/A | N/A | N/A |

Note:
Table format based on DWR Guidebook Table 29.

## 4.7 Desalination

This section presents a discussion of opportunities to use desalinated water as a supplemental future water supply source for the West Orange System. Section 10631 (i) of the Act requires an evaluation of desalination opportunities within the West Orange System. The Act states the following:

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

Wholesalers providing water to the West Orange System are actively pursuing seawater desalination projects. Water produced by these desalination projects would increase the total available water supply for the wholesalers and would, in-turn, improve the reliability of water supply for the West Orange System. The following discussion summarizes the desalination plans of water wholesalers Metropolitan and Municipal Water District of Orange County (MWDOC).

Metropolitan and its member agencies view seawater desalination as a component of a diversified water supply portfolio. Recent and continuous breakthroughs in membrane technology have helped to reduce desalination costs, leading to the consideration of desalination among the alternative resource options outlined in Metropolitan's 2010 Integrated

Resources Plan (IRP) Update. Metropolitan's IRP Update includes a target goal of up to 150,000 acre-feet per year (ac-ft/yr) of seawater desalination by 2025. This is an important component of the total estimated water supply production for the region. As of 2010, Metropolitan continues to pursue a target for seawater desalination of 150,000 AF per year by 2025.

Metropolitan is also involved in efforts to assess current desalination projects and to compare project features and applicability to Southern California. Furthermore, Metropolitan, in association with member agencies, is involved in assessing established and emerging desalination treatment technologies, pretreatment alternatives, and brine disposal issues, as well as the permitting and regulatory approvals associated with the delivery of desalinated seawater to regional and local distribution systems.

In Orange County, there are three proposed seawater desalination projects that could serve MWDOC and its member agencies, including GSWC with additional water supply. These include the Poseidon Resources proposed South Orange Coastal Ocean Desalination Project, the Huntington Beach Seawater Desalination Project, and the Camp Pendleton Seawater Desalination Project (MWDOC 2010).

**South Orange Coastal Ocean Desalination Project**. MWDOC is working collaboratively with Laguna Beach County Water District, Moulton Niguel Water District, City of San Clemente, City of San Juan Capistrano, and South Coast Water District to develop the South Orange Coastal Ocean Desalination Project (Project). The Project is currently in *Phase 3 Feasibility Testing* which is expected to be completed in 2012. The pilot plant test facility is located next to Doheny State Beach parking lot in Dana Point - the same location for the proposed full-scale facility. If Phase 3 testing results are favorable the initiative would move forward in the design and construction of a full-scale project to produce 15 mgd of potable water. Should environmental and permitting move forward as planned, the project could be constructed and operational with water deliveries beginning as early as fall 2016.

**Huntington Beach Seawater Desalination Project.** The Poseidon Resources Corporation Proposed Project plans to provide 50 million gallons per day (mgd) of desalinated water supply for distribution into coastal and south Orange County. Poseidon has received non-binding Letters of Intent (LOI) from MWDOC and 17 retail water agencies to purchase a total of approximately 72 mgd of project supplies. GSWC is one of those agencies having signed a non-binding letter of intent to potentially purchase up to 5,000 AFY. The project is currently in the process of acquiring the necessary permits, but promoters advertise that the project could be producing potable water by 2013.

**Camp Pendleton Seawater Desalination Project.** The San Diego County Water Authority (SDCWA) is studying the feasibility of the Camp Pendleton Seawater Desalination Project to be located at the southwest corner of Camp Pendleton Marine Corps Base. A feasibility investigation was recently completed, outlining preliminary plans, potential funding sources, and technical alternatives for the project (SDCWA, 2009). The facility would be constructed in three phases, the first phase producing 50 mgd, with the following phases each increasing the capacity by an additional 50 mgd. The timeline included in the feasibility study estimates Phase 1 completion by 2020. The delivery of the product water into MWDOC and SDCWA service areas will be explored for investigating pumping requirements and connecting pipelines. MWDOC and South Orange County agencies are maintaining a potential interest in the project, but at this time they are only pursuing limited fact finding and monitoring of the project.

Table 4-10 provides a summary of opportunities for water desalination. As stated above, proposed desalination projects of Metropolitan and MWDOC would collectively increase the reliability of water supply for the region. However, the exact quantity of water that would be provided to GSWC's West Orange System is not yet known.

Table 4-10: Summary of Opportunities for Water Desalination

| Source of Water | Yield (ac-ft/yr) | Start Date | Type of Use | Other |
|---|---|---|---|---|
| Poseidon Resources Huntington Beach Seawater Desalination | 56,000 | 2013 | Potable Water | N/A |
| SDCWA Camp Pendleton Seawater Desalination | 56,000 – 168,000 | 2020 | Potable Water | N/A |
| South Orange Coastal Desalination Project – Dana Point Ocean Desalination | 16,000 | 2017 | Potable Water | N/A |

## 4.8 Recycled Water Plan

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

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

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

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

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

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

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

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

### 4.8.1 Coordination

Table 4-11 summarizes the role of the agencies that participate in the development of recycled water plans that affect the West Orange System of the Golden State Water Company (GSWC).

Table 4-11: Role of Participating Agencies in the Development of the Recycled Water Plan

| Participating Agencies | Role in Plan Development |
|---|---|
| Water agencies | GSWC works closely with the Orange County Sanitation District in providing data for planning a potential recycled water distribution system and identifying potential recycled water customers. The Orange County Water District, acting as the recycled water wholesaler, would lead the way in implementing the recycled water plan and distribution network. |
| Wastewater agencies | The Orange County Sanitation District provides a reliable supply of secondary treated water which is further treated by Orange County Water District to meet California recycled water quality standards set forth in Title 22 of the California Code of Regulations. |
| Groundwater agencies | Orange County Water District injects recycled water into a seawater intrusion barrier as part of the Groundwater Replenishment System. |
| Planning agencies | Orange County Sanitation District and Water District play key roles in conducting data and customer assessments, as well as analyzing community and economic impacts. |

### 4.8.2 Wastewater Quantity, Quality, and Current Uses

Wastewater in the West Orange System is collected by gravity sewers and lift stations owned by the cities of Cypress and Stanton or the Rossmoor/Los Alamitos Sewer District. The wastewater is then transported by trunk sewers to the Orange County Sanitation District (OCSD) Plant 1 in Fountain Valley and/or Plant 2 in Huntington Beach.

Plants 1 and 2 provide primary and secondary treatment for an average dry weather flow (DWF) of 83 and 147 million gallons of wastewater per day (mgd), respectively. Plant 1 has a design capacity of 174 mgd, and Plant 2 has a design capacity of 276 mgd. The plants operated by the OCSD serve residential and commercial customers in 21 cities and three special districts.

Currently, the majority of the treated effluent is discharged into the Pacific Ocean through a 1-mile diffuser section, 5 miles offshore. The OCSD provides approximately 10 mgd of secondary treated water from Plant 1 to OCWD for reclamation. OCWD further treats this water to meet recycled water standards (MWDOC, 2010). This water is used throughout the region for landscape irrigation and non-potable commercial uses such as carpet dyeing. However, a recycled water distribution system for the West Orange area has been determined to be economically infeasible. Therefore, there are no recycled water uses within the boundaries of the West Orange System.

In conjunction with the OCSD, the Orange County Water District (OCWD) has implemented a Groundwater Replenishment System (GWRS) with a production capacity of 70 mgd. Wastewater is treated using microfiltration, reverse-osmosis, and ultra-violet and hydrogen peroxide disinfection. Approximately 35 mgd of GWRS water is pumped into injection wells

where it serves as a seawater intrusion barrier. Another 35 mgd is pumped to recharge basins in the City of Anaheim, where the water filters through sand and gravel to replenish the deep aquifers of north and central Orange County's groundwater basin (OCWD, 2009).

Because the OCSD Plants 1 and 2 treat wastewater for a larger population than exists in the West Orange System, an estimated per capita wastewater generation factor was used to calculate the volume of wastewater generated by the customers in the West Orange System. The wastewater generation factor is based on the population served and the combined average DWF for the two treatment plants. The OCSD serves 2.5 million residents and treats a total of 230 mgd, making the average per capita wastewater generation factor 92 gallons per day (gpd). This per capita wastewater generation factor was used to estimate the wastewater generation in the West Orange System; Table 4-12 summarizes the estimates of existing and projected volumes of wastewater collected and treated in the West Orange System. Of the 230 mgd treated at Plants 1 and 2, 80 mgd is treated to meet recycled water quality standards (10 mgd for OCWD, and 70 mgd for GWRS). This is equivalent to 34.7 percent of the total treated wastewater volume. The same percentage was used to estimate the fraction of the wastewater from the West Orange System that is treated to meet recycled water standards for 2010. The remaining effluent (65.3 percent) is discharged into the Pacific Ocean through a diffuser pipe offshore (refer to Table 4-13). An expansion of the GWRS is planned to be completed in 2014, with additional capacity of 30 mgd (OCWD, 2009). This will result in a total of 110 mgd meeting recycled water quality standards, equivalent to 47.8 percent of the total wastewater flow. This fraction was used to estimate values in Table 4-12 and Table 4-13 for years 2015 -2035.

Table 4-14 was intentionally left blank because there are no existing recycled water sales in the West Orange System.

Table 4-12: Estimates of Existing and Projected Wastewater Collection and Treatment in ac-ft/yr (mgd) for the West Orange System

| | 2005[2] | 2010[2] | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|---|---|
| Projected population in service area | 109,516 | 111,418 | 114,665 | 118,110 | 120,047 | 121,830 | 122,498 |
| Wastewater collected and treated in service area | 11,286 (10.08 mgd) | 11,482 (10.25 mgd) | 11,817 (10.55 mgd) | 12,172 (10.87 mgd) | 12,371 (11.04 mgd) | 12,555 (11.21 mgd) | 12,624 (11.27 mgd) |
| Quantity that meets recycled water standard | 3,926 (3.50 mgd) | 3,994 (3.57 mgd) | 5,651 (5.05 mgd) | 5,821 (5.20 mgd) | 5,917 (5.28 mgd) | 6,005 (5.36 mgd) | 6,037 (5.39 mgd) |

Notes:

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

| Table 4-13: Estimates of Existing and Projected Disposal of Non-Recycled Wastewater in ac-ft/yr (mgd) for the West Orange System | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Method of Disposal** | **Treatment Level** | **2005[(2)]** | **2010[(2)]** | **2015** | **2020** | **2025** | **2030** | **2035** |
| Ocean Discharge | Secondary | 7,360 (6.57) | 7,488 (6.69) | 6,165 (5.50) | 6,350 (5.67) | 6,455 (5.76) | 6,550 (5.85) | 6,586 (5.88) |

Notes:
1. This table is based on the DWR Guidebook Table 22.
2. Based on actual year.
3. Volumes of effluent discharged are estimated. For a description of the methodology, refer to the text.

| Table 4-14: Existing Recycled Water Use in the West Orange System | | |
|---|---|---|
| **Type of Use** | **Treatment Level** | **2010 Use (ac-ft/yr)** |
| N/A | N/A | N/A |

### 4.8.3 Potential and Projected Use

An expansion of the GWRS is planned to be completed in 2014, with additional capacity of 30 mgd (MWDOC, 2011). However, despite the expansion in recycled water capacity, OCWD does not currently have any plans to distribute recycled water to the West Orange System. Therefore, Table 4-15 and Table 4-16 were intentionally left blank because they are not applicable for this system. Finally, in the 2005 UWMP for the West Orange System, there were no projections of recycled water by the year 2010. Therefore, Table 4-17 has intentionally been left blank.

| Table 4-15: Potential Future Recycled Water Uses in ac-ft/yr | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Type of Use** | **Treatment Level** | **Description** | **Feasibility** | **2015** | **2020** | **2025** | **2030** | **2035** |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

Note:
This table is based on the DWR Guidebook Table 23.

| Table 4-16: Projected Future Recycled Water Use in Service Area in ac-ft/yr | | | | | |
|---|---|---|---|---|---|
| **Type of Use** | **2015** | **2020** | **2025** | **2030** | **2035** |
| N/A | N/A | N/A | N/A | N/A | N/A |

| Table 4-17: Comparison of Recycled Water Uses—Year 2005 Projections versus 2010 Actual | | |
|---|---|---|
| **Type of Use** | **2005 Projection for 2010** | **2010 Actual Use** |
| N/A | N/A | N/A |

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

### 4.8.4 Optimization and Incentives for Recycled Water Use

OCSD and OCWD are responsible for determining the technical and economic feasibility of supplying recycled water to the West Orange System. Because there are currently no plans to provide recycled water to the West Orange System, there are no actions in place at this time by which GSWC is encouraging the use of recycled water in their system. Therefore, Table 4-18 is not applicable for this system and has been intentionally left blank. Indirect water reuse through groundwater recharge does not necessitate incentives. Groundwater recharge increases the available potable water supply, keeping the cost of water to consumers lower by decreasing the need to develop new water supply sources.

| Table 4-18: Methods to Encourage Recycled Water Use and the Resulting Projected Use in ac-ft/yr | | | | | |
|---|---|---|---|---|---|
| **Actions** | **2015** | **2020** | **2025** | **2030** | **2035** |
| N/A | N/A | N/A | N/A | N/A | N/A |

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

THIS PAGE INTENTIONALLY BLANK

# Chapter 5: Water Quality

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

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

## 5.1 GSWC Measures for Water Quality Regulation Compliance

To facilitate full compliance with water quality laws and regulations, GSWC maintains an Environmental Quality Department that has independent lines of reporting authority within the organization. The Environmental Quality Department is headed by a company officer specifically assigned to oversee and manage the company's environmental and water quality programs. The Vice President of Environmental Quality has a staff of three managers, including two Water Quality Managers. The Water Quality Managers, in turn, manage a staff of Water Quality Engineers and Technicians that are assigned to district offices. Each district office is assigned one Water Quality Engineer and at least one Water Quality Technician to provide direct support to the local drinking water systems within the district.

The District Water Quality Engineer is the main point of contact for the California Department of Public Health (CDPH) as well as other regulatory agencies. The Water Quality Engineer also is responsible for coordinating compliance measures through scheduling required sample collection, preparing water quality related plans, maintaining a water quality database, providing training to operations, maintaining a cross connection control program, and preparing and submitting monitoring reports, permit applications and other regulatory related correspondence.

As a whole, the Environmental Quality Department monitors and participates in the implementation of new water quality related laws and regulations. Through routine department meetings and training, the District Water Quality Engineers are kept up to date with changing water quality regulations and related technology. These efforts contribute towards maintaining a pool of trained water quality professionals that can be utilized throughout the company. This provides the company the ability to respond to a wide variety of water quality issues or emergencies.

## 5.2 Water Quality Issues

The drinking water quality of the West Orange System must comply with the Safe Drinking Water Act (SDWA), which is composed of primary and secondary drinking water standards regulated by the U.S. Environmental Protection Agency and CDPH. Water Quality sampling is performed at each well and within the distribution system to ensure compliance with the regulatory standards.

### 5.2.1 Surface Water Quality

Treated surface water purchased from the Metropolitan Water District of Southern California (Metropolitan) is delivered to the West Orange System. Metropolitan is responsible for meeting all drinking water standards as water leaves the surface water treatment plant and at all inter-connections with the West Orange System.

### 5.2.2 Groundwater Quality

Table 5-1 summarizes water quality issues and recommendations for wells within the West Orange System. The groundwater wells in the system meet all current California Title 22 drinking water standards. The following discussion relates to contaminants with maximum containment levels (MCLs) that are either existing or have been proposed by the U.S. Environmental Protection Agency (USEPA) and/or CDPH.

Drinking water regulations pertaining to emerging contaminants of concern, such as chromium (VI), and nitrosamines, as well as potential revisions to existing regulations are closely monitored by GSWC's Environmental Quality Department. The appropriate sampling and action will be taken on any affected water supply sources as monitoring requirements, new or revised MCLs are promulgated by the USEPA or CDPH. It is anticipated that it will take approximately 2 to 5 years from official adoption of a new or revised MCL to implement wellhead treatment or alternative approach for a source, including all steps from procuring CPUC funding approval to planning, permitting, design, and construction. There is typically adequate time allotted from regulatory approval to promulgation of a new drinking water standard to address localized treatment requirements; therefore no direct impacts to water supply reliability from future water quality regulations are anticipated at this time.

Strategies for treating groundwater in the West Orange System are designed to meet or exceed state and federal regulations. All equipment is regularly maintained by GSWC personnel, and any failures are immediately addressed, resulting in minimal disruption to water supply.

**Manganese**. Seven wells in the West Orange System have been impacted by manganese (Mn). Cherry No. 3 and Florista wells are treated at the Cherry plant using pyrolusite. The Bloomfield Well has historically exceeded the Mn Secondary MCL and is al currently treated using pyrolusite. The Ball and Yellowtail wells have detectable Mn concentrations, but remain below the Secondary MCL and are currently not treated. The Simone well is currently inactive, and Baskerville has been destroyed due to Mn concentrations above MCL.

**Perchlorate.** Seven of the 20 wells in the West Orange System have an average perchlorate concentration above the laboratory detection limit of 2.5 µg/L. Of these, the Lowell well has registered the highest concentrations, up to 13.4 µg/L of perchlorate. The average concentration of perchlorate in the Santa Paula well is approaching the MCL of 6 µg/L. Neither Lowell Well nor Santa Paula Well is currently operating. The other 5 impacted wells maintain concentrations below MCL and are carefully monitored.

**Arsenic.** Arsenic has been detected in 5 wells within the West Orange system. Concentrations are below MCL, so no treatment is currently employed for arsenic, but levels are carefully monitored.

**Radon.** Half of the wells in the West Orange system also report measurable radon concentrations. Although it is not currently regulated, the USEPA has proposed a radon MCL of

300 pCi/L. USEPA also proposed an alternative standard of 4,000 pCi/L if the state has an approved Multimedia Mitigation program to reduce the indoor radon risk from soil and rocks underneath homes and buildings. While the proposed radon rule has not proceeded to promulgation, the effect of the proposed radon MCL would be widespread in groundwater wells throughout California.

Best available technologies for radon removal include Packed Tower Aeration (PTA) and Granular Activated Carbon (GAC). Due to some critical operation concerns with the use of GAC, PTA is the most common and effective method for radon removal. Installation of treatment facilities at some of the well sites in this system may be problematic due to lack of available space for treatment equipment. It is expected the state will develop an approved Multimedia Mitigation program thus allowing the alternative MCL standard.

Table 5-1: Summary of Assessment

| Well | Current Well Capacity (gpm)[1] | Status | Water Quality Issue/Concern | Existing Treatment | Recommendations |
|---|---|---|---|---|---|
| Ball | 950 | Active | Arsenic, Radon, Manganese | None | Continue to Monitor; Plan for Treatment or Replacement; Future Multimedia Mitigation (Radon) |
| S. Cypress | 650 | Active | Radon | None | Future Multimedia Mitigation (Radon) |
| Simone | 0 | Standby / Inactive | Arsenic, Manganese | None | Plan for Treatment or Replacement |
| Valley View No. 1 | 300 | Active | Radon | None | Future Multimedia Mitigation (Radon) |
| Valley View No. 2 | 2360 | Active | None | None | Metropolitan Conjunctive use well |
| Bloomfield Well | 1,330 | Active | Manganese, Iron | Pyrolusite (manganese dioxide) | |
| Cherry No. 3 | 290 | Active | Arsenic, Manganese | Pyrolusite (manganese dioxide) | |
| Florista | 1030 | Active | Arsenic, Manganese | Pyrolusite (manganese dioxide) | |
| Howard | 870 | Active | Arsenic, Radon | None | Continue to Monitor; Plan for Treatment or Replacement; Future Multimedia Mitigation (Radon) |
| Yellowtail | 720 | Active | Manganese | None | |
| Beach | 900 | Active | Radon | None | Future Multimedia Mitigation (Radon) |
| Claire No. 4 | 0 | Inactive | Perchlorate | None | Continue to Monitor; Plan for Treatment or Replacement |

| Table 5-1: Summary of Assessment | | | | | |
|---|---|---|---|---|---|
| **Well** | **Current Well Capacity (gpm)[1]** | **Status** | **Water Quality Issue/Concern** | **Existing Treatment** | **Recommendations** |
| Claire No. 5 | 0 | Currently being equipped | Perchlorate | None | Continue to Monitor |
| Dale | 420 | Active | Perchlorate, Radon | None | Continue to Monitor; Plan for Treatment or Replacement; Future Multimedia Mitigation (Radon) |
| Lowden | 190 | Active | Perchlorate | None | Continue to Monitor; Plan for Treatment or Replacement |
| Lowell | 0 | Standby / Inactive | Nitrate, Perchlorate, Radon | None | Plan for Treatment or Replacement |
| Orangewood | 680 | Active | Radon | None | Future Multimedia Mitigation (Radon) |
| Sherrill | 640 | Active | Perchlorate, Radon | None | Continue to Monitor; Plan for Treatment or Replacement; Future Multimedia Mitigation (Radon) |
| Santa Paula | 0 | Standby / Inactive | Nitrate, Perchlorate, Radon | None | Plan for Treatment or Replacement |
| Sycamore-Fern | 420 | Active | Perchlorate | None | Continue to Monitor; Plan for Treatment or Replacement |

Note:

1. Estimated annual average current well production capacity is provided; actual and design instantaneous pumping capacity may be greater for each well.

### 5.2.3 Distribution System Water Quality

Distribution system water quality monitoring is performed for several water quality parameters in the West Orange System, including general physical parameters, presence of coliform bacteria, and disinfectant and disinfection by-product levels. Corrosivity is measured by monitoring lead and copper levels at customer water taps. All monitoring parameters and levels currently meet drinking water standards. The ability to continue to meet these standards is not expected to change in the foreseeable future. The West Orange System utilizes an approved Sample Siting Plan for the collection, recording, and reporting of all bacteriological analyses. The West Orange System has also established an aggressive cross-connection control program to reduce the hazard associated with backflow and back-siphonage. These programs are required to comply with CDPH regulations on Waterworks Standards and Cross Connection Control.

## 5.3 Projected Impact of Water Quality

Table 5-2 summarizes the projected impact on water supply due to water quality issues with wells in the West Orange System. There are no impacts currently forecasted.

Table 5-2: Summary of Projected Water Supply Changes Due to Water Quality Issues

| Water Source | Projected Change (ac-ft/yr) | | | | | |
|---|---|---|---|---|---|---|
| | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 |
| Ball Well | 0 | 0 | 0 | 0 | 0 | 0 |
| So. Cypress Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Simone Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Valley View Well No. 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Valley View Well No. 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Baskerville Well (destroyed) | 0 | 0 | 0 | 0 | 0 | 0 |
| Bloomfield Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Cherry Well No. 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| Florista Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Howard Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Yellowtail Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Beach Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Clair Well No. 3 (destroyed) | (355) | 0 | 0 | 0 | 0 | 0 |
| Clair Well No. 4 | 0 | 0 | 0 | 0 | 0 | 0 |
| Clair Well No. 5 | 0 | 1,613 | 0 | 0 | 0 | 0 |
| Dale Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Lowden Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Lowell Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Montecito Well (destroyed) | 0 | 0 | 0 | 0 | 0 | 0 |
| Orangewood Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Sherrill Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Santa Paula Well | 0 | 0 | 0 | 0 | 0 | 0 |
| Sycamore-Fern Well | 0 | 0 | 0 | 0 | 0 | 0 |

Note:
Table format based on DWR Guidebook Table 39.

THIS PAGE INTENTIONALLY BLANK

# Chapter 6: Water Supply Reliability

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

*Section 10631.*

*(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:*

*(A) An average water year.*

*(B) A single dry water year.*

*(C) Multiple dry water years.*

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

*Section 10635.*

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

## 6.1 Reliability of Supply

The West Orange System obtains its water supply from two sources: imported Metropolitan water from MWDOC and groundwater from the Orange County Groundwater Basin. Since Metropolitan obtains water supply from a number of different sources, conditions in local and distant areas can impact the reliability of supplies. This section summarizes the reliability of GSWC's water supply sources for the West Orange System. In general, GSWC's supply is expected to be 100 percent reliable through 2035. This reliability is a result of:

- The projected reliability of MWDOC, a member agency of Metropolitan, which expects to provide reliable imported water supplies;
- OCWD management of the Orange County Groundwater Basin to ensure reliability; and
- Conservation derived supply.

### 6.1.1 Wholesale Water Supply Reliability

MWDOC, the local imported water wholesaler, currently obtains nearly all its imported water from Metropolitan, directly or indirectly. Metropolitan's plan for resource management is intended to optimize the use of its available resources during surpluses and shortages to minimize the probability of severe shortages and eliminate the possibility of extreme shortages and shortage allocations.

Metropolitan has prepared several resource management plans which are intended to document strategies that will be utilized to optimize the use of its available resources during both surpluses and droughts to minimize the probability of severe shortages, as well as shortage allocations. This section includes a discussion of Metropolitan and MWDOC water supply reliability considerations. Significant additional supply reliability detail may be obtained from the MWDOC 2010 UWMP and Metropolitan's 2010 Regional Urban Water Management Plan.

#### 6.1.1.1 Metropolitan Supply Reliability

This section presents a brief discussion of the source reliability of Metropolitan's primary water supply sources: purchased water supply from the Colorado River and the State Water Project, and Metropolitan's plans to ensure a reliable water supply into the future. Metropolitan maintains a diverse portfolio of water sources including surface water supply, aquifer recharge and recovery, desalination, and recycled water. The two primary components of Metropolitan's water supplies are also the most variable:

- ***Colorado River Supply:*** Metropolitan owns and operates the Colorado River Aqueduct (CRA), which connects the Colorado River to the Metropolitan regional distribution system. The CRA has a capacity of 1.25 Million AFY (MAF) to transport Metropolitan's current contracted entitlement of 550 Thousand AFY (TAF) of Colorado River water. Metropolitan also holds a priority for an additional 662 TAF and 180 TAF when surplus flows are available.

- ***State Water Project (SWP) Supply:*** The original State Water Project Contract called for an ultimate delivery capacity of 4.2 MAF, with Metropolitan holding a contract for 1.9 MAF. Since that time there have been significant challenges to meeting those delivery goals. DWR released a Water Allocation Analysis in 2010 that has resulted in a Metropolitan estimated reduction in SWP supplies of 150 – 200 TAF for 2010 (Metropolitan 2010).

As a result of the inherent uncertainty in Colorado River and SWP supplies given various hydrologic, environmental, and legal considerations, Metropolitan has undertaken several planning initiatives, summarized below, to broaden its water resources reliability. Metropolitan has documented that consistent with Section 4202 of its Administrative Code, the agency is prepared to provide its member agencies with adequate supplies of water to meet expanding and increasing needs in the years ahead. When additional water resources are required to meet increasing needs, Metropolitan has stated that it will be prepared to deliver such supplies. In its 2010 Regional Urban Water Management Plan, Section II.4, Metropolitan also states that as a result of investments made in supply and storage, it has identified a resource management plan that should result in 100 percent reliability for non-discounted non-interruptible demands through 2035.

- **Integrated Resources Plan Updates (IRP):** Metropolitan's IRP updates completed in 1996, and updated in 2004 and 2010, included assessments of potential future regional demand projections based upon anticipated population and economic growth as well as conservation potential. The IRP also includes regional supply strategies and implementation plans to better manage resources, meet anticipated demand, and ensure overall system reliability. Metropolitan intends to implement the 2010 IRP to further support member agency local resource development and to investigate generating its own local resources for distribution to member agencies. The development of local resources, as well as the furthering of existing conservation goals to meet the Water Conservation Act of 2009 targets, is

anticipated to provide a supply buffer for member agencies to rely upon in times of drought and long-term climatic changes.

- **1999 Water Surplus and Drought Management Plan (WSDM):** The WSDM provides the policy guidance to manage the region's water supplies to achieve the reliability goals of the IRP. This is achieved by integrating the operating activities of surplus and shortage supplies through a series of stages and principles.

- **2008 Water Supply Allocation Plan (WSAP):** The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering the allocation. The need for the WSAP arose after the 2008 Bay-Delta biological opinions and rulings that limited SWP supplies to its contractors including Metropolitan. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies up to 50 percent.

Since the 2008 Bay-Delta reductions, Metropolitan has been using the WSAP formulas to contend with the reduction in available imported supplies implementing a Stage 2 (Regional 10 percent reduction in supply allocation) of the WSAP from July 2009 to April 2011. During such allocations, Metropolitan institutes severe financial penalties should an entity request supply over their reduced allocation. This in effect, limits supply at the retail level. Although it is anticipated that the WSAP will continue to be in effect in the near–term, Metropolitan states in its 2010 Draft UWMP that there will be sufficient supply to meet member agency demands in single and multiple-dry years from 2015 through 2035. However, this is assuming that Metropolitan storage levels are at or above average levels prior to those cycles, and key programs come to fruition as assumed by Metropolitan in their projections. For example, Metropolitan assumes that a Delta conveyance solution will be in place by 2022. Also, Metropolitan has indicated that there is a 50 percent probability that storage levels will be lower than the assumption used. Based on the recent WSAP allocations and regulatory restrictions in the Delta, GSWC's conservative assumption is that Metropolitan's projections in their 2010 Draft UWMP may not be 100 percent reliable in all cases.

#### 6.1.1.2 MWDOC's Water Supply Reliability

MWDOC relies on a combination of imported and local supplies to meet its water demands and has taken several steps to ensure its member agencies have adequate supplies, these steps include:

- Development of groundwater,
- Groundwater recovery,
- Recycled water systems,
- Desalination opportunities, and
- Collection of urban return flows to augment the reliability of the imported water system.

MWDOC expects its supplies to be 100 percent reliable through 2035 for normal, single-dry, and multiple-dry year scenarios from Metropolitan (MWDOC 2011). MWDOC does not break down the basis of total demand for their system by retail water provider, but states that supplies exceed demands in all scenarios for the projection period.

### 6.1.2 GSWC's Groundwater Supply Reliability

GSWC can pump the BPP annually as set by OCWD. Annually, OCWD evaluates hydrologic conditions in the Basin, including groundwater levels and amount of groundwater in storage, and sets the BPP. MWDOC, with input from OCWD, has completed reliability analyses for each of the 5-year projection periods from 2010 through 2035 for GSWC's groundwater supply and projects an average BPP of 62 percent. One of OCWD's water management goals in the Basin is to set the BPP as high as possible, while responsibly managing the groundwater supply. A high BPP reduces the demand on imported water supplies and offers pumpers a less expensive water supply alternative than imported water (OCWD, 2009).

Five agencies, in addition to the pumpers, work cooperatively to ensure that a reliable water supply is available to be pumped by the pumpers in the Orange County Basin. These agencies include the OCWD, Metropolitan, Water Replenishment District (WRD), Los Angeles County Department of Public Works (LACDPW), and the Orange County Sanitation District (OCSD). Current and planned projects designed to increase groundwater reliability in the Orange County Basin include seawater intrusion barriers, in-lieu groundwater replenishment, diverted surface water flows recharged at spreading basins, and the Groundwater Replenishment System (GWRS) which involves the use of highly treated wastewater for groundwater recharge.

OCWD's Talbert Barrier is a seawater intrusion barrier that consists of 26 injection wells across the 2.5-mile-wide Talbert Gap between the Newport and Huntington mesas. The Talbert Barrier has been in operation since 1975. The water used for injection has consisted of highly treated wastewater, colored groundwater, and imported water. The Talbert Barrier is being expanded as a part of the GWRS to increase the quantity of water injected along the barrier and to increase the use of highly treated wastewater for recharge.

Metropolitan, in cooperation with MWDOC and OCWD, operates an in-lieu replenishment program in the Orange County Basin. When excess supplies and treatment capacity are available from Metropolitan, pumpers turn off their wells and receive Metropolitan water in-lieu of pumping groundwater. This program reduces the amount of water pumped from the Basin. The in-lieu program has many advantages, including providing an energy-efficient method of recharging the Basin, providing a neutral cost alternative to the pumpers, preserving OCWD's recharge capacity to be preserved for Santa Ana River flows, and the program can target definitive areas in the Basin (OCWD, 2009) to raise groundwater levels.

The Alamitos Barrier is operated by the LACDPW in cooperation with OCWD and WRD. The seawater intrusion barrier consists of a series of injection wells that span the Los Angeles/Orange County line in the Seal Beach/Long Beach area. Currently, Metropolitan provides potable water for injection at the Barrier.

The Orange County Groundwater Basin's primary source of water for groundwater recharge is the Santa Ana River (SAR). OCWD diverts flows from the Santa Ana River and Santiago Creek for recharge at spreading facilities located in the cities of Anaheim and Orange. The majority of the baseflow of the SAR, especially in the summer months, consists of tertiary-treated wastewater discharges from wastewater treatment facilities upstream of the Prado Dam. OCWD is allotted, by court decision, a minimum SAR baseflow of 42,000 ac-ft/yr. Baseflow in the SAR between 1970 and 2002 ranged from 47,000 ac-ft/yr and 170,000 ac-ft/yr. Currently, OCWD is able to capture and percolate all of the SAR baseflow during non-storm events. In addition to the baseflow, OCWD captures SAR stormflow. OCWD captures and percolates approximately 50,000 ac-ft/yr of stormflows from the SAR (OCWD, 2009).

In conjunction with the OCSD, the Orange County Water District is implementing the GWRS. The GWRS will eventually result in the reuse of up to 130 mgd of highly treated wastewater. The GWRS is currently recharging 72,000 ac-ft/yr with plans to expand to 103,000 ac-ft/yr by 2014. Advanced treatment processes include microfiltration, reverse osmosis, and ultra-violet and hydrogen peroxide disinfection. The GWRS is augmenting existing groundwater supplies through indirect potable reuse, providing a reliable, high-quality source of recharge water for the Basin (OCWD, 2009). Additionally, the GWRS is providing water for direct injection at the Talbert Barrier, reducing the dependence on imported water for injection.

The first phase of the GWRS has increased the reliability of local groundwater by producing a total of 72,000 ac-ft/yr of water for recharge. The first phase of the GWRS was operational by mid-2007. The completion of the GWRS is expected by 2020, providing a total annual recharge capacity of 140,000 ac-ft/yr.

### 6.1.3 Water Supply Reliability Analysis

Supply reliability for the West Orange System depends upon local groundwater pumping and the reliability of imported water from MWDOC, as discussed above.

MWDOC, working with the Orange County Water District, has provided imported water and groundwater reliability information to assist their retail agencies in completing their long-term water supply analyses for the 2010 UWMP. MWDOC and OCWD evaluated the basin's historical hydrology from 1922 to 2004. The reliability analyses provided by MWDOC analyzed GSWC's Placentia, Cowan Heights, and West Orange Systems together. In each of the respective UWMPs for GSWC's systems listed above, the individual system projections have been extracted from the totals provided by MWDOC.

Table 6-1 presents water supply projections for imported water and groundwater (note that groundwater includes the indirect reuse of highly treated wastewater through capture of SAR flow and implementation of OCWD's GWRS) sources during a normal year, single-dry year, and multiple-dry years for the West Orange System for year 2035. The normal-year supply represents the expected supply under average hydrologic conditions, the dry-year supply represents the expected supply under the single driest hydrologic year, and the multiple-dry year supply represents the expected supply during a period of three consecutive dry years. Water supply reliability projections for imported water and groundwater for the 5-year periods from 2010 through 2035 are presented in this chapter.

For a single-dry year and multiple-dry years, the supplies were calculated based on the percentages of total normal year water supplies provided by MWDOC. This approach was applied for both imported water and groundwater.

MWDOC will meet projected water demands under all anticipated hydrologic conditions. During a single-dry and multiple-dry years, MWDOC is expected to increase their imported demand to make up for the decrease in local supplies. Metropolitan, MWDOC, and OCWD have implemented and will continue to implement projects to ensure that imported water and groundwater demands can be met under normal, single-dry year, and multiple-dry years. As discussed earlier, Metropolitan plans on 100 percent supply reliability to MWDOC, which in turn provides 100 percent reliability of imported water supply to the West Orange System.

The Orange County Groundwater Basin has substantial storage capacity to provide a buffer during droughts and to accept recharge of surplus waters during times of available supplies (e.g., storm water, highly treated recycled water, and imported water). Continued diligence by

GSWC and other groundwater users, OCWD, and MWDOC are expected to help maintain the reliability of the Orange County Groundwater Basin groundwater supply. MWDOC has provided all of its member agencies, including GSWC, with groundwater reliability analyses from 2010 to 2035. MWDOC has assured GSWC that any remaining water demands not met by local groundwater for each year will be met with imported water that will be 100 percent reliable.

GSWC's reliance upon information provided by OCWD and MWDOC does not represent an endorsement of any or all of the future projects or programs to be undertaken to enhance water availability. GSWC, in making its projections of reliable future water supply, bases such on Metropolitan's assertion that it will provide 100 percent reliable supply through 2035.

As described above, purchased water supplies, whether from Metropolitan or other parties in conjunctive use storage programs that are anticipated to be developed, are expected to be 100 percent reliable and able to meet demands through 2035. Therefore, the imported water supply projections for a normal water year, single-dry year, and multiple-dry years are taken as the 2035 projection, which is equivalent to the imported water demand projected for 2035. It is assumed that the single-dry year and multiple-dry year supplies are the same as those for the normal years because available supplies are sufficient to meet projected demands under all anticipated hydrologic conditions – whether it be from water transfers stored in conjunctive use storage programs that could be developed, or core or buffer water supplies from Metropolitan.

Table 6-1: Supply Reliability for the West Orange System for Year 2035 in ac-ft/yr

| Source | Normal Water Year | Single-Dry Water Year | Multiple-Dry Water Years | | |
|---|---|---|---|---|---|
| | | | Year 1 | Year 2 | Year 3 |
| Imported water from MWDOC | 7,465 | 7,465 | 7,465 | 7,465 | 7,465 |
| Groundwater | 12,180 | 12,180 | 12,180 | 12,180 | 12,180 |
| Total | 19,645 | 19,645 | 19,645 | 19,645 | 19,645 |
| Percent of Normal | | 100 | 100 | 100 | 100 |

Note:
Table format based on DWR Guidebook Table 28.

Table 6-2 lists single-dry year and multiple-dry year periods for both groundwater and imported water supplies. Metropolitan's 2010 Integrated Water Resource Plan (IRP), evaluated the basin's historical hydrology from 1922 to 2004. The annual average hydrology, including precipitation and stream runoff data, over this period was used to calculate the available reliable groundwater supply for GSWC's West Orange, Cowan Heights, and Placentia Systems. Metropolitan selected the basin's single-dry year to be 1977 and multiple-dry year period to be 1990-1992. Again, the Orange County Groundwater Basin storage is used and the basin is operated to store surplus waters (storm water, recycled water, and imported water) when these waters are available and then to draw down the basin in drier years

| Table 6-2: Basis of Water Year Data | | |
|---|---|---|
| **Water Year Type** | **Base Year(s)** | **Historical Sequence** |
| **Imported Water[1]** | | |
| Normal Water Year | Average 1922-2004 | 1922-2004 |
| Single-Dry Water Year | 1977 | 1922-2004 |
| Multiple-Dry Water Years | 1990-1992 | 1922-2004 |
| **Groundwater[2]** | | |
| Normal Water Year[3] | Average 1922-2004 | 1922-2004 |
| Single-Dry Water Year | 1977 | 1922-2004 |
| Multiple-Dry Water Years | 1990-1992 | 1922-2004 |

Notes:
1. Metropolitan 2010 IRP/MWDOC 2010 UWMP.
2. Table format based on DWR Guidebook Table 27.

### 6.1.4 Factors Resulting in Inconsistency of Supply

Table 6-3 presents factors that could potentially result in inconsistency of supply for the West Orange System. There is no seasonal vulnerability to the groundwater supply for the West Orange System. The climatic vulnerability for the groundwater supply is only based on the change of the basin production percentage of the Orange County Groundwater Basin. During dry years, historically, OCWD has slightly reduced the basin production percentage for the Basin.

| Table 6-3: Factors Resulting in Inconsistency of Supply | | | | |
|---|---|---|---|---|
| **Name of Supply** | **Legal** | **Environmental** | **Water Quality** | **Climatic** |
| Imported Water from MWDOC | N/A | N/A | N/A | N/A |
| Groundwater, Orange County Groundwater Basin | Managed by the Orange County Water District (OCWD). OCWD controls the amount allowable water pumped from the Basin. | N/A | There are no foreseeable water quality factors affecting consistency of supply. | N/A |

Notes:
1. Table format based on DWR Guidebook Table 29.
2. N/A – Not Applicable.

## 6.2 Normal Water Year Analysis

Table 6-4 summarizes the service reliability assessment for a normal water year based on water supply and water demand projections for the West Orange System. For the normal year water supply scenario the water supplies available to the West Orange System are expected to be 100 percent reliable.

Table 6-4: Comparison of Projected Normal Year Supply and Demand

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Water Supply Total (ac-ft/yr) | 18,602 | 19,160 | 19,366 | 19,562 | 19,645 |
| Water Demand Total (ac-ft/yr) | 18,602 | 19,160 | 19,366 | 19,562 | 19,645 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as Percent of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as Percent of Demand | 0% | 0% | 0% | 0% | 0% |

Note:
Table format based on DWR Guidebook Table 32.

## 6.3 Single-Dry-Year Analysis

Table 6-5 demonstrates the reliability of water supplies to meet projected annual water demands for the West Orange System in a single-dry year. MWDOC has determined that they can meet their projected water demands in a single-dry year. The combination of imported water and groundwater supplies are projected to equal the projected demands.

Table 6-5: Comparison of Projected Supply and Demand for Single-Dry Year

| | 2015 | 2020 | 2025 | 2030 | 2035 |
|---|---|---|---|---|---|
| Supply Total (ac-ft/yr) | 18,602 | 19,160 | 19,366 | 19,562 | 19,645 |
| Demand Total (ac-ft/yr) | 18,602 | 19,160 | 19,366 | 19,562 | 19,645 |
| Difference (supply minus demand) | 0 | 0 | 0 | 0 | 0 |
| Difference as Percent of Supply | 0% | 0% | 0% | 0% | 0% |
| Difference as Percent of Demand | 0% | 0% | 0% | 0% | 0% |

Note:
Table format based on DWR Guidebook Table 33.

## 6.4 Multiple-Dry-Year Analysis

Table 6-6 presents the projected multiple-dry year water supply and demand assessment for the West Orange System. The third year of the multiple-dry year water supply projection represents the end of each 3-year multiple-dry year period as required for the multiple-dry year analysis. MWDOC has determined that they can meet their projected water demands during a multiple-dry-year scenario. The combination of imported water and groundwater supplies are projected to equal the projected demands.

Table 6-6 demonstrates that the water supplies are sufficient to meet the projected water demand for each multiple-dry year period. MWDOC has assured GSWC that any remaining water demands not met by local groundwater for each year will be met with imported water that will be 100 percent reliable. As a result, the total water supplies to meet the demands under multiple-dry years are expected to be 100 percent reliable.

In summary, GSWC, Metropolitan, MWDOC, and OCWD have implemented and will implement projects to ensure that the total water demands can be met under normal, single-dry year, and multiple-dry years.

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

| Year | Supply (ac-ft/yr) | Demand (ac-ft/yr) | Difference | Difference as Percent of Supply | Difference as Percent of Demand |
|---|---|---|---|---|---|
| 2011 | | | | | |
| 2012 | | | | | |
| 2013 | 17,276 | 17,276 | 0 | 0% | 0% |
| 2014 | 17,939 | 17,939 | 0 | 0% | 0% |
| 2015 | 18,602 | 18,602 | 0 | 0% | 0% |
| 2016 | | | | | |
| 2017 | | | | | |
| 2018 | 18,936 | 18,936 | 0 | 0% | 0% |
| 2019 | 19,048 | 19,048 | 0 | 0% | 0% |
| 2020 | 19,160 | 19,160 | 0 | 0% | 0% |
| 2021 | | | | | |
| 2022 | | | | | |
| 2023 | 19,284 | 19,284 | 0 | 0% | 0% |
| 2024 | 19,325 | 19,325 | 0 | 0% | 0% |
| 2025 | 19,366 | 19,366 | 0 | 0% | 0% |
| 2026 | | | | | |
| 2027 | | | | | |
| 2028 | 19,484 | 19,484 | 0 | 0% | 0% |
| 2029 | 19,523 | 19,523 | 0 | 0% | 0% |
| 2030 | 19,562 | 19,562 | 0 | 0% | 0% |
| 2031 | | | | | |
| 2032 | | | | | |
| 2033 | 19,612 | 19,612 | 0 | 0% | 0% |
| 2034 | 19,628 | 19,628 | 0 | 0% | 0% |
| 2035 | 19,645 | 19,645 | 0 | 0% | 0% |

Notes:

1. This assessment is based on the 3-year multiple-dry year period ending in 2015, 2020, 2025, 2030, and 2035.
2. Table format based on DWR Guidebook Table 34.

THIS PAGE INTENTIONALLY BLANK

# Chapter 7: Conservation Program and Demand Management Measures

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

*Section 10631.*

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

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

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

*(B) Residential plumbing retrofit.*

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

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

*(E) Large landscape conservation programs and incentives.*

*(F) High-efficiency washing machine rebate programs.*

*(G) Public information programs.*

*(H) School education programs.*

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

*(J) Wholesale agency programs.*

*(K) Conservation pricing.*

*(L) Water conservation coordinator.*

*(M) Water waste prohibition.*

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

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

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

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

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

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

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

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

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

*(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by*

*complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.*

## 7.1 Conservation Program Background

In 1991, GSWC became a signatory to the MOU regarding water conservation in California and a member of the CUWCC, establishing a firm commitment to the implementation of the Best Management Practices (BMPs) or DMMs. The CUWCC is a consensus-based partnership of agencies and organizations concerned with water supply and conservation of natural resources in California. By becoming a signatory, GSWC committed to implement a specific set of locally cost-effective conservation practices in its service areas. In order to facilitate efficient BMP reporting for GSWC across service areas spread throughout California, several BMP "Reporting Units" were established. GSWC's conservation program implementation for three systems in Region III is included in the Orange County BMP Reporting Unit. As a result, this water conservation chapter includes the reporting for the Cowan Heights, Placentia and West Orange Systems.

As an investor-owned utility, GSWC's ability to obtain funding and implement conservation programs is contingent on approval of the General Rate Case by the CPUC. GSWC is currently in the process of reviewing and revising its existing conservation program as follows:

- In 2011, GSWC will be submitting a General Rate Case with the CPUC which will facilitate further development of cost-effective conservation programs, including compliance with SBX7-7.

- Subject to funding approval for each rate making area, GSWC will conduct a baseline water use efficiency assessment of each of its districts to identify the opportunities for cost-effective conservation. Results of the baseline assessment will be available by 2013 and will enable GSWC to define programs that target water savings in specific cost-effective areas and meet DMM requirements.

- To the extent practicable, a companywide conservation program will then be implemented. Varying levels of program implementation will be scaled as appropriate for each district depending on funding availability, local wholesaler and regional participation levels, and SBX7-7 targets.

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

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

Note:

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

## 7.2 Implementation of BMPs/DMMs

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

GSWC is progressing towards implementing all Foundational BMPs for these systems, as required in the revised MOU and UWMP Act. The Programmatic BMPs are currently being implemented through a BMP approach for the systems. The SBX7-7 conservation goals and proposed implementation plans are discussed further in Section 7.5.

GSWC plans to continue to implement and track conservation programs for systems in the Orange County Reporting Unit. GSWC also partners on conservation activities with its wholesale water suppliers, including Metropolitan, OCWD, and MWDOC. GSWC's customers are eligible for a number of conservation programs offered by Metropolitan, providing water savings to GSWC. Examples of programs offered by wholesale suppliers that are available to customers include High Efficiency Clothes Washers (HECW) rebates, CII programs and rebates, and High Efficiency Toilets (HET) rebates.

## 7.3 Foundational DMMs

### 7.3.1 Utility Operations

#### 7.3.1.1 Conservation Coordinator

This BMP is implemented. GSWC maintains a fully staffed Conservation Department with a companywide Water Use Efficiency Manager, Water Conservation Analyst and a Water Conservation Coordinator representing each of the three regions, that administers conservation programs and supports wholesaler programs. GSWC also employs a number of consultants to support program development and implementation.

#### 7.3.1.2 Water Waste Prevention

Although GSWC does not have rule-making authority, it supports member agencies and local cities in efforts to adopt ordinances that will reduce water waste. This BMP is implemented through CPUC-approved rules provided in Appendix D, including Rule No. 14.1, the Water Conservation and Rationing Plan, Rule 11, Discontinuance and Restoration of Service.

CPUC's methodology for water utilities to implement Rule 14.1 is documented in Standard Practice U-40-W, "Instructions for Water Conservation, Rationing, and Service Connection Moratoria." Rule No. 14.1 sets forth water use violation fines, charges for removal of flow restrictors, and the period during which mandatory conservation and rationing measures will be in effect. Water conservation restrictions include:

- Use of potable water for more than minimal landscaping.
- Use through a broken or defective water meter.

- Use of potable water which results in flooding or runoff in gutters or streets.
- Use of potable water for washing private cars or commercial aircrafts, cars, buses, boats, or trailers, except at a fixed location where water is properly maintained to avoid wasteful use.
- Use of potable water for washing buildings, structures, driveways, street cleaning or other hard-surfaced areas.
- Use of potable water to irrigate turf, lawns, gardens or ornamental landscaping.
- Use of potable water for construction purposes.
- Use of potable water for filling or refilling of swimming pools.

Rule No. 20 (approved in 1978) discourages wasteful use of water and promotes use of water saving devices. The stated purpose of the rule is to “ensure that water resources available to the utility are put to a reasonable beneficial use and that the benefits of the utility's water supply and service extend to the largest number of persons." Together, Rules 11, 14.1 and 20 prohibit negligent or wasteful use of water, create a process for mandatory conservation and rationing, and promote the use of water-saving devices.

#### 7.3.1.3 Water Loss Control

Unaccounted for water losses are monitored by the Water Loss Control Department (WLCD) by reviewing the Water Audit program’s survey results. If the amount of unaccounted for water exceeds the established tolerance levels, a Leak Detection Audit is performed. This is conducted by the Water Loss Control Technician with the most current leak detection technology, a Sonic Leak Detection Sound Amplification Instrument. To pinpoint leaks, the technician conducts a comprehensive survey of the system by making physical contact with all available main line valves, hydrant valves and all service connections.

For calendar year 2009, GSWC implemented the American Water Works Association (AWWA) M36 Standard Water Audit methodology. The approach consists of a component analysis of leaks for designation into “revenue” and “non-revenue” categories and an economic analysis of recoverable loss. Results of the analysis, are included in the 2009/2010 BMP coverage report located in Appendix C.

Before the AWWA Standard Water Audit M36 methodology was implemented, prescreening for water losses was conducted by comparing the total volume of water sales and other verifiable uses against the total water supply into the system. A full audit was triggered if the total sales and verifiable uses was less than 90 percent of the total supply (i.e., unaccounted-for-water exceeded 10 percent). Table 7-2 summarizes prescreening results.

| Table 7-2: Water Loss Control Evaluation Summary | | |
|---|---|---|
| **Report Year** | **Prescreen Completed** | **Prescreen Result** |
| 2006 | Yes | 95.4% |
| 2007 | Yes | 99.7% |
| 2008 | Yes | 94.5% |
| 2009 | Yes | 94.5% |

Note:
2010 Data Not applicable; M36 method implemented.

Implementation Steps and Schedule

Effective 2010, GSWC will continue to complete the Standard Audit and Water Balance worksheets following the AWWA M36 protocol for the next four years, taking measurable steps to improve data accuracy while cost-effectively reducing non-revenue water through repair of leaks and other measures. The water audit for calendar year 2010 will be completed by mid-2011.

GSWC used version 3.0 of the AWWA Water Audit software for its initial evaluation, and will use the current software for 2010 and all future evaluations. The current version includes metrics for evaluating the validity of the data. GSWC already has a work order system in place that documents leak locations and repair history.

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

All customers of the Orange County Reporting Unit are metered and billed by volume on a monthly basis. A meter maintenance and repair plan has been submitted to the CUWCC. In addition, GSWC follows the requirements of CPUC General Order 103-A which prescribes minimum water system design, operation and maintenance standards for water utilities includes requirements for calibrating, testing frequency, and replacing water meters.

#### 7.3.1.5 Retail Conservation Pricing

All metered customers in the West Orange System are charged volumetrically. In addition, effective December 2010, GSWC has implemented a three-tiered conservation pricing rate structure for residential customers, as approved by the CPUC for Region III, including the West Orange System customers. The current rate structure for residential customers has a fixed charge as well as volumetric escalating pricing tiers, depending on customer usage. Non-residential customers have a fixed charge and a fixed volumetric charge. Implementation of this revised pricing policy is the result of GSWC's collaboration with CPUC to implement conservation tiered rates for residential customers of investor-owned utilities. Tiered rates are consistent with the CPUC's Water Action Plan.

Implementation Steps and Schedule

2009 and 2010 volumetric and fixed price revenue data for the Orange County Reporting Unit are summarized in the BMP Coverage Report located in Appendix C. Since 2010, GSWC has been adding third tier pricing structures and increasing volumetric charges. In 2010, volumetric revenue consisted of 63.1 percent of Orange County Reporting Unit's total revenue which is on track to meet the 2012 MOU goal of 70 percent.

As previously discussed, GSWC will be submitting a General Rate Case filing with the CPUC in 2011 which includes a proposed rate increase on volumetric charges for customers in the Orange County Reporting Unit. If approved, this rate increase will allow GSWC to increase volumetric revenues and progress towards fulfilling the requirements of the Retail Conservation Pricing BMP. If the rate structure increases are approved as proposed, it is anticipated that GSWC will be on track to meet this BMP by 2015.

### 7.3.1.6 Education

#### Public Information Programs

Customers of the Orange County Reporting Unit are notified of various conservation programs by the Community Education Department. GSWC had a 2010 annual budget of $10,900 for public outreach in the Orange County Reporting Unit. GSWC provides marketing and outreach materials to their customers by issuing press releases, publishing quarterly newsletters bill inserts and staffing conservation booths at community events. In addition, GSWC partners with its wholesalers, MWDOC and OCWD to provide the Water Facility Inspection Trip Program, the O.C. Water Hero Program and eCurrents. Outreach activities completed between 2006 and 2010 are summarized in Table 7-3.

Table 7-3: Outreach Activities

| Item | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Paid Advertising | 2 | 4 | 2 | 8 | 8 |
| Public Service Announcement | 0 | 2 | 3 | 0 | 0 |
| Bill Inserts / Newsletters / Brochures | 3 | 2 | 2 | 8 | 8 |
| Bill showing water usage in comparison to previous year's usage | Yes | Yes | Yes | Yes | Yes |
| Demonstration Gardens | 0 | 0 | 0 | 0 | 0 |
| Special Events, Media Events | 3 | 1 | 1 | 2 | 2 |
| Speaker's Bureau | 0 | 0 | 0 | 0 | 0 |
| Program to coordinate with other government agencies, industry, public interest groups and media | Yes | Yes | Yes | Yes | Yes |

#### School Education Programs

GSWC sponsors a school education program in Orange County elementary schools that is implemented by The Discovery Science Center (DSC), with a 2010 annual budget of $200,000 for Region III. Students learn about conservation practices and receive a free conservation kit that includes a water survey, 1.5 gpm low-flow shower head, 1.5 gpm kitchen sink and 1.0 gpm

bathroom aerators, leak detection dye tablets, a watering gauge, and step-by-step instructions. The students are given a homework assignment to complete a water audit form and replace inefficient showerheads and aerators with water-saving devices provided in the kit. The program has been a very effective way for GSWC to reach a large number of customers and educate students, who in turn educate their parents about water-efficiency practices and low-flow plumbing devices.

In addition, to the DSC program, MWDOC and OCWD sponsor the Water Education Poster and Slogan Contests as well as the Children's Water Education Festival. The Water Education Poster and Slogan Contest Program has children in grades K-6 develop posters and slogans that reflect a water awareness message, with participation of more than 1,500 students. The Children's Water Education Festival is a festival that contains a variety of booths focused on different water-related topics, with participation of more than 5,000 students.

Results from the programs are tracked, and a comprehensive Program Summary Report is generated at the end of each school year. This report documents the estimated reduction in water usage that was achieved through the retrofits and provides data on the percentage of students who participated in the program. Table 7-4 provides a summary of program participation results between 2006 and 2010.

Table 7-4: School Education Activities

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| Presentations | 52 | 14 | 9 | 265 | 265 |
| Grade | K – 8$^{th}$ | 4$^{th}$ – 6$^{th}$ | 4$^{th}$ – 6$^{th}$ | K-6$^{th}$ | K-6th |
| Number of students | 3,082 | 4,518 | 4,381 | 8500 | 8500 |

In addition to the DSC and partnering with wholesalers and other public agencies, GSWC implements Resource Action Programs (RAP) and the Science Discover (SD) program. During the 2009/2010 school year, GSWC conducted school conservation education programs for an estimated 15,525 students companywide.

Implementation Steps and Schedule

GSWC recognizes the value in increased customer awareness of the various conservation programs that are available. To that end, GSWC will review opportunities to enhance its outreach program over the next two (2) years to supplement DSC's existing public outreach efforts. Public information measures that will be evaluated include additional direct mail fliers, increased outreach participation at community functions, and an improved conservation website.

Going forward, GSWC plans to continue to use the RAP, DSC, and SD and internal staff to conduct its school conservation programs. RAP and DSC's school conservation education programs will continue to include annual reports, classroom education and the distribution and installation of conservation kits that are part of the school education program.

#### 7.3.1.7 Foundational BMPs - Methods Used to Evaluate Effectiveness and Water Savings

Effective implementation of the Foundational BMPs is critical to ensuring the long-term success of GSWC's conservation efforts. GSWC will utilize quantitative methods to assess the effectiveness of each BMP, to the extent practicable. The effectiveness of the Water Waste Prevention and Water Loss Control BMPs can be measured, in part, by completing the annual M36 water loss audits and documenting a year-over-year reduction in unaccounted-for water. GSWC will track the impact of new conservation pricing by using its existing billing system to carefully monitor consumption of residential customers.

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

There are no direct estimates of water savings applicable to the Foundational BMPs; however, these measures will continue to contribute to reducing demand in the Orange County Reporting Unit.

## 7.4 Programmatic DMMs

As described above, GSWC intends to continue to comply with the MOU using the BMP compliance approach for the Orange County Reporting Unit. Implementation of the programmatic BMPs will continue to be a joint effort with Metropolitan. Metropolitan is responsible for administering most of the Residential, Landscape, and CII BMPs currently being offered to customers of the Orange County Reporting Unit. Additional detailed descriptions of wholesaler DMM implementation can also be found in Metropolitan's 2010 UWMP. GSWC will continue to support Metropolitan activities and will focus on improving outreach to its customers and promoting awareness of the programs available to them.

Once the pending rate case is approved by the CPUC, GSWC will develop a prioritized water use efficiency program and implementation schedule for all customer service areas in the company focusing on systems with the highest SBX7-7 water use reduction targets, and those where specific conservation activities can be implemented that are locally cost-effective. Programs that are cost-effective to implement on a companywide basis will also be considered. At this time, all of the BMPs are cost-effective for implementation in Region III, where the avoided cost of water is $1,089 per acre-foot.

### 7.4.1 Residential DMMs

#### 7.4.1.1 Residential Assistance Programs

GSWC has an audit program targeting high-use single-family (SF) and multi-family (MF) customers. GSWC identifies these customers based on billing data and contacts them to offer free audits. Audits are also offered to walk-in customers at the local customer service area office. Additional home audits are conducted as part of the school education program (Section 7.3.1.6). The number of residential audits performed by GSWC and the number of low-flow devices that were distributed are summarized in Table 7-5. Low-flow devices are available for free to customers at the GSWC office and are distributed to students as part of the free conservation kits they receive in the school education program.

| Table 7-5: Residential Surveys and Retrofits | | | | | |
|---|---|---|---|---|---|
| | **2006** | **2007** | **2008** | **2009** | **2010** |
| **Single-Family Accounts** | | | | | |
| Surveys Offered | 0 | 0 | 2,556 | 0 | 0 |
| Surveys Completed | 0 | 0 | 459 | 0 | 0 |
| **Multi-Family Accounts** | | | | | |
| Surveys Offered | 0 | 0 | 2,556 | 0 | 0 |
| Surveys Completed | 0 | 0 | 459 | 0 | 0 |
| **Devices** | | | | | |
| Showerheads | 1,400 | 0 | 4,380 | 0 | 0 |
| Aerators | 2,690 | 0 | 4,380 | 0 | 0 |

Implementation Steps and Schedule

GSWC will work to increase customer participation in the Orange County Reporting Unit to 552 surveys per year by 2015. Additionally, over the next five years GSWC will continue providing conservation kits including distributing low flow showerheads to customers at least at the rate of 552 units per year until saturation requirements are satisfied for this BMP. Methods that are currently under consideration to increase program participation include direct mailings, website improvements, and outreach targeted at high water use customers.

Methods Used to Evaluate Effectiveness and Water Savings

Effectiveness of implementation of this program is evaluated by GSWC by tracking customer participation rates in surveys and distribution of low flow showerheads. The following water savings estimates were developed using data provided by the CUWCC:

- Residential Assistance Surveys: According to the CUWCC, SF surveys are estimated to save 40 gpd and MF surveys are estimated to save 20 gpd. At 552 surveys per year, it is estimated that GSWC will save more than 1,000 ac-ft over the next 10 years.

- Low flow showerheads: Per the CUWCC, it is estimated that 7.7 gpd per unit is conserved from installation of low flow showerheads. At 75 percent saturation, the potential total savings is approximately 170 ac-ft over the next 10 years.

Program effectiveness and per capita use will continue to be monitored based on meter readings and billing data, and follow-up calls will be made to offer audits and other assistance to high-use customers. Implementation of the residential assistance programs BMP has no anticipated impacts on GSWC's ability to further reduce demands.

#### 7.4.1.2 Landscape Water Surveys

GSWC offers landscape water surveys to high water-use SF and MF customers throughout the company. Since residential surveys include a landscape component, participation rates are included in the residential assistance program summary above. Introduction of the third tier of metered rates in late 2010 is expected to result in higher participation rates, and funding has been designated to improving program marketing.

Implementation Steps and Schedule

See residential assistance programs description.

Methods Used to Evaluate Effectiveness and Water Savings

See residential assistance programs description.

#### 7.4.1.3 Turf Removal Program

This program is a partnership between MWDOC/OCWD, Metropolitan, and local retail water agency. Through this program, residential and small commercial customers of participating retail water agencies are eligible to receive $1.50 per square foot of turf removed for qualifying projects.

Implementation Steps and Schedule

See residential assistance programs description.

Methods Used to Evaluate Effectiveness and Water Savings

See residential assistance programs description.

#### 7.4.1.4 High-Efficiency Clothes Washers

GSWC customers are eligible to participate in the High Efficiency Clothes Washer (HECW) rebate program provided by Metropolitan, which has been available since 2003. Metropolitan has supplemented its HECW rebate using state or federal grants whenever possible. The water efficiency of clothes washers is represented by the "water factor," which is a measure of the amount of water used to wash a standard load of laundry. Washers with a lower water factor save more water. Metropolitan has continued to move the market by changing its program requirement to lower water factors. The program eligibility requirement is currently set at water factor 4.0, which saves more than 10,000 gallons per year per washer over a conventional top loading washer. GSWC does not contribute funds to the HECW rebate program. The GSWC conservation webpage for the Orange County Reporting Unit advertises the rebates and provides a link to the Metropolitan website for full program details. A summary of the HECW Rebates received by GSWC customers in the Orange County Reporting Unit is provided in Table 7-6.

Table 7-6: HECW Rebates

| | 2006 | 2007 | 2008 | 2009 | 2010 | TOTAL |
|---|---|---|---|---|---|---|
| Rebates | 341 | 0 | 447 | 208 | 482 | 1478 |

Implementation Steps and Schedule

To comply with the BMP, rebates need to be issued to 353 customers per year in the Orange County Reporting Unit. GSWC intends to continue to participate in the HECW rebate program administered by Metropolitan. To increase program participation, GSWC will increase marketing efforts to raise customer awareness that the program is being offered. GSWC will develop an updated conservation website, and prominently include HECW rebate incentives on future bill stuffers or other direct mail campaigns.

Methods Used to Evaluate Effectiveness and Water Savings

Metropolitan tracks customer participation in the HECW rebate program and estimates that 28 gallons per day are saved for each HECW installed. At the required implementation levels, it is estimated that GSWC will save approximately 484 ac-ft from HECWs installed over the next 10 years. There are no anticipated impacts on GSWC's ability to further reduce demands.

#### 7.4.1.5 WaterSense Specification (WSS) Toilets

GSWC customers have been eligible to participate in the High Efficiency Toilet (HET) rebate program administered by Metropolitan since 2008. Metropolitan has provided incentives for toilet programs since 1988, including ULFT rebates. Currently, Metropolitan only provides funding for high-efficiency toilets (1.28 gallons per flush or less), which use 20 percent less than ultra-low-flush toilets (1.6 gallons per flush). Ultra-low-flush toilets are the current standard defined by the plumbing code. Metropolitan uses the EPA's WaterSense list of tested toilets in its programs as qualifying models. The GSWC webpage for the Orange County Reporting Unit advertises the rebates and provides a link to the Metropolitan website for full details. The number of rebates issued by Metropolitan to GSWC Orange County Reporting Unit customers is provided in Table 7-7.

Table 7-7: Toilet Rebates and Replacements Received by West Orange System Customers

| Type | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|
| **Single-Family** | | | | | |
| ULFT Rebate | 108 | 0 | 0 | 0 | 0 |
| HET Rebate | 1 | 0 | 225 | 674 | 120 |
| **Multi-Family** | | | | | |
| ULFT Rebate | 8 | 0 | 0 | 0 | 0 |
| HET Rebate | 0 | 0 | 224 | 278 | 14 |

Implementation Steps and Schedule

Compliance requires that 409 rebates be issued per year to SF accounts and 10 rebates be issued to a MF account. GSWC intends to continue to participate in the HET rebate program administered by Metropolitan.

Methods Used to Evaluate Effectiveness and Water Savings

Metropolitan tracks customer participation in the HET rebate program to measure effectiveness. According to the CUWCC research and evaluation committee, it is estimated that 21.1 and 26.6 gallons per day are saved for each HECW installed in SF and MF units, respectively. It is estimated that GSWC will save approximately 488 ac-ft from HET installations completed over the next 10 years at required implementation levels. There are no anticipated impacts on GSWC's ability to further reduce demands.

#### 7.4.1.6 WaterSense Specification for Residential Development

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

Implementation Exemption

GSWC is filing an exemption on implementation of the WSS specification for new developments due to lack of legal authority. As an investor-owned utility, GSWC is not a regulatory authority and cannot adopt ordinances or regulations; however, it does support standards that will achieve a reduction in indoor water use including implementation and use of WSS fixtures as well as adoption of the CAL Green Code by local jurisdictions. GSWC will continue to support incentive programs for water efficient devices and standards.

#### 7.4.1.7 Commercial, Industrial, and Institutional DMMs

The Commercial, Industrial, and Institutional (CII) BMPs are implemented by Metropolitan on behalf of GSWC. Table 7-8 provides a summary of CII program participation from GSWC's Orange County Reporting Unit customers from 2006 to 2010. GSWC customers are eligible to participate in Metropolitan's CII program, Save Water, Save-A-Buck Program for Southern California businesses. Those who qualify are eligible for generous rebates to help encourage water efficiency and conservation. Devices available for rebates include: high efficiency toilets, zero water and ultra low water urinals, connectionless food steamers, air-cooled ice machines (Tier III), cooling tower and pH conductivity controllers, water brooms, dry vacuum pumps (see 7.3.2.7 below). Additionally, the Save-A-Buck program offers rebates for outdoor landscaping equipment such as: weather based irrigation controllers, central computer irrigation controllers, rotating spray nozzles retrofits, and high efficiency large rotary nozzle retrofits. In addition, GSWC partners with its wholesalers, MWDOC/OCWD to provide the Water Smart Hotel Program and the Industrial Process Water Use Reduction Program. The Water Smart Hotel Program provides Orange County hotels and motels with commercial and landscape water saving surveys, incentives for retrofits and customer follow-up. The Industrial Process Water Use Reduction Program provides engineering surveys to identify water saving process improvements in the Orange County industrial customer base.

| Table 7-8: CII Programs | | | | | |
|---|---|---|---|---|---|
| **CII Surveys** | **2006** | **2007** | **2008** | **2009** | **2010** |
| CII HET Rebates | 0 | 0 | 71 | 364 | 0 |
| CII Urinal Rebates | 0 | 0 | 12 | 0 | 0 |
| CII HECW Rebates | 0 | 0 | 27 | 278 | 0 |
| Cooling Tower Controllers | 0 | 0 | 3 | 0 | 0 |
| Cash for Grass | 0 | 0 | 0 | 0 | 0 |
| Pressurized Water Broom | 0 | 0 | 0 | 0 | 8 |

Implementation Steps and Schedule

GSWC's goal for the next 3 to 5 years is to focus on advertising and outreach programs as described elsewhere in this chapter. If, after additional advertising efforts it is determined that Metropolitan's program is not meeting coverage requirements, GSWC will evaluate augmenting Metropolitan's program.

Methods Used to Evaluate Effectiveness and Water Savings

Effectiveness of the CII BMP will be evaluated through tracking multiple parameters including program participation, metered CII water use, high water users, and measuring water savings for specific CII activities where practicable to show a water savings of at least 49 ac-ft per year.

### 7.4.1.8 Large Landscape

GSWC's landscape program consists of identifying and contacting high-use customers, providing information and offering water use surveys, voluntary water use budgets, and landscape training. The targeted customers include home owner associations with more than one acre of landscaping, city parks, and sports fields. While the program is available to all customers free of charge, none have chosen to participate. An increase in conservation pricing rates in 2011 is expected to generate increased participation as is the funding mechanism that will allow for increased resources for program marketing. Table 7-9 summarizes the number of irrigation incentive rebates distributed in the Orange County Reporting Unit in 2010.

| Table 7-9: 2010 CII and MF Irrigation Rebates | | |
|---|---|---|
| **Rebate Programs** | **Number of Incentives** | **Dollar Value of Incentives** |
| WBIC Rebates | 4 | 2513 |
| CII Precision Nozzles Rebates | 201 | 603 |
| Total | 205 | 3116 |

Implementation Steps and Schedule

Implementation of this BMP will be improved by promoting existing incentive activities and raising customer awareness about existing audit program offerings. For the next 4 to 5 years, GSWC will work to increase program participation at schools and other institutional accounts to establish landscape water budgets and decrease overall water use. Additionally, GSWC will discuss with Metropolitan specific measures that could be implemented to encourage broader interest in the multiple CII programs that are currently being offered.

In order to meet BMP coverage requirements, GSWC/Metropolitan/MWDOC will need to develop evapotranspiration-based landscape water budgets with dedicated irrigation meters for 89 accounts per year. Devices such as weather based irrigation controllers (WBIC) and precision nozzles would also need to be distributed in order to meet the requirements of this BMP. To meet minimum requirements, GSWC would need to supply 37 WBIC rebates per year, directly install 37 WBICs, and distribute 5,562 precision nozzles.

Methods Used to Evaluate Effectiveness and Water Savings

GSWC will track increased customer participation in the CII large landscape water budgeting and rebate programs. Once GSWC is satisfying coverage requirements for this BMP, it is estimated that as much as 2,219 ac-ft could be conserved over the next ten years.

## 7.5 SBX7-7 Compliance Approach

The SBX7-7 water use baseline for the West Orange system is 151 gpcd and the 2020 compliance goal is 140 gpcd as documented in Chapter 3. Several factors have contributed to a rapid reduction in gpcd over the past few years. Implementation of a residential tiered conservation pricing structure combined with mild climatic conditions and economic recession have contributed to a recent 15 percent decline in per capita water use in the West Orange System from 144 gpcd in 2008 to an estimated 122 gpcd in 2010. The West Orange System currently satisfies its SBX7-7 goals and will focus on maintaining these savings over the next 10 years.

However, if the gpcd begins to increase to previous levels, GSWC's continued commitment to complying with the CUWCC MOU and implementation of all BMPs should provide sufficient water savings to meet the goal of 140 gpcd. GSWC will assess implementation of a suite of programs over the next 2 to 3 years to meet conservation targets companywide. Implementation levels and specific program offerings will vary by system depending on system goals, including existing implementation levels, demographics, and hydrologic characteristics.

GSWC is developing a companywide approach that will include assessment of options such as accelerating the current programs, and adding additional programmatic, regulatory and information-based activities to meet the requirements of SBX7-7. This systematic approach may allow GSWC to do more with less, in essence, administering overall conservation program operations from a centralized location while allowing local resources for direct implementation of BMPs and other water savings practices. Funding for all conservation activities is subject to approval by the CPUC before programs can be implemented. Some of the programs that may be considered by GSWC if needed to meet SBX7-7 requirements include financial incentives, regulatory approaches, and information elements. These efforts will be planned to build on existing programs and activities. Programs that may be implemented by 2014 on a companywide basis include the following:

### Conservation Pricing

GSWC is in the process of filing a General Rate Case application to increase tiered rates in its systems for residential and CII metered customers. If approved, increased tiered rates are expected to significantly increase water savings and participation in conservation incentive programs in many of GSWC's systems.

### Financial Incentives

Ongoing and/or additional financial incentives may be offered directly to customers by GSWC or in partnership with other agencies:

1. HECW rebates: Clothes washer rebates are already being implemented by Metropolitan on behalf of GSWC and will continue to provide measurable water savings.

2. Zero and low-flow urinal rebates: Rebates would include CII fixtures such as zero consumption and ultra-low volume urinals as well as CII specific HETs.

3. Expansion of fixture rebates to CII and MF customers in all systems: currently, the toilet rebate programs are only available to CII and MF customers in select systems. GSWC will evaluate expansion of the programs to all customers and there will be increased focus on marketing to large Home Owner Association accounts.

4. Larger variety of fixture rebates: This may include hot water distribution tanks, pressurized water brooms and high-pressure spray nozzles.

5. Cash-for-grass rebates: Customers will be provided with an incentive of up to $0.5 per square-foot of turf removed and replaced with landscape appropriate plants. The program is being considered for both residential and CII customers; it is currently being offered in select GSWC systems.

6. Expansion of large landscape program: GSWC will be evaluating the effectiveness of the current landscape program and making adjustments depending on the results. If the program is found to be successful at meeting reduction targets, the program may be accelerated and more devices will be offered, such as precision nozzles.

### Building Code/New Standards

Although it does not have regulatory authority, GSWC supports adoption of new building standards, beyond those currently in code to enhance conservation. If all current code changes that improve the efficiency of fixtures and design are implemented, it could account for up to 60 percent of the expected reduction in demand. Some of the changes proposed will be captured in the CAL Green Code, adopted January 2011 as well as SB407 (Plumbing Retrofit on Resale) and standard updates for toilets and washers that are being phased in.

### Information/Tracking

Information and tracking represents a new element to the existing programs focusing on collecting and processing information and ensuring that the programs are on track to meet the goals. These activities will also help in program design by providing more robust information about customers and their water use patterns. The immediate priorities include:

1. Automatic Meter Reading (AMR): GSWC currently follows the requirements of CPUC General Order 103-A, which prescribe minimum water system design, operation and maintenance standards for water utilities, and includes requirements for calibrating, testing frequency, and replacing water meters. GSWC will continue to follow this standard and consider the use of AMR in its systems as a priority to obtain real time data for water usage and identify customer-side leaks. This information can also help GSWC monitor the impacts of existing programs, make adjustments where necessary and develop new programs.

2. Water Use Tracking Tools: Another priority, GSWC will consider plans to design and develop database tracking tools for water savings associated with its conservation plans and increase flexibility in adding or changing program elements.

GSWC is developing a companywide approach that will include assessment of options such as accelerating the current programs, and adding additional programmatic, regulatory and information-based activities to meet the requirements of SBX7-7. This systematic approach may allow GSWC to do more with less, in essence, administering overall conservation program operations from a centralized location while allowing local resources for direct implementation of BMPs and other water savings practices. Funding for all conservation activities is subject to approval by the CPUC before programs can be implemented.

### Consideration of Economic Impacts

Since funding for all conservation activities is subject to approval by the CPUC before programs can be implemented, the economic impacts of complying with SBX7-7 have not yet been fully determined. However, an economic analysis to help develop programs that avoid placing disproportionate burdens on any single sector will be prepared during development of the SBX7-7 water use efficiency program. The annual costs associated with implementing all traditional CUWCC programmatic BMPs cannot be determined because it represents the combined efforts of Metropolitan, MWDOC and GSWC, where funding levels, incentives and particular measures change from year to year. To continue benefiting customers, GSWC will take advantage of applicable partnership programs that will make conservation programs more efficient and cost effective.

THIS PAGE INTENTIONALLY BLANK

# Chapter 8: Water Shortage Contingency Plan

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

> *Section 10632. The plan shall provide an urban water-shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:*
>
> *(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions, which are applicable to each stage.*
>
> *(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.*
>
> *(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.*
>
> *(d) Additional, mandatory prohibitions against specific water-use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.*
>
> *(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water-use reduction consistent with up to a 50 percent reduction in water supply.*
>
> *(f) Penalties or charges for excessive use, where applicable.*
>
> *(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*
>
> *(h) A draft water shortage contingency resolution or ordinance.*
>
> *(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

This chapter documents GSWC's Water Shortage Contingency Plan for the West Orange System per requirements of Section 10632 of the Act. The Water Shortage Contingency Plan is based on Rule No. 14.1 Mandatory Water Conservation, Restrictions and Ratings Program adopted by GSWC and on file with CPUC. Appendix D contains the full text of the rule.

The purpose of the Water Shortage Contingency Plan is to provide a plan of action to be followed during the various stages of a water shortage. The plan includes the following elements: action stages, estimate of minimum supply available, actions to be implemented during a catastrophic interruption of water supplies, prohibitions, penalties and consumption reduction methods, revenue impacts of reduced sales, and water use monitoring procedures.

## 8.1 Action Stages

The Act requires documentation of actions to be undertaken during a water shortage. GSWC has developed actions to be undertaken in response to water supply shortages, including up to a 50 percent reduction in water supply. Implementation of the actions is dependent upon approval of the CPUC, especially for implementing mandatory water use restriction. CPUC has jurisdiction over GSWC because GSWC is an investor-owned water utility. Section 357 of the California Water Code requires that suppliers subject to regulation by the CPUC secure its

approval before imposing water consumption regulations and restrictions required by water supply shortage emergencies.

GSWC has grouped the actions to be taken during a water shortage into four stages, I through IV, that are based on the water supply conditions. Table 8-1 describes the water supply shortage stages and conditions. The stages will be implemented during water supply shortages according to shortage level, ranging from 5 percent shortage in Stage I to 50 percent shortage in Stage IV. A water shortage declaration will be made by the American State Water Company Board. The water shortage stage determination during a water supply shortage will be made by the Regional Vice President Customer Service.

Table 8-1: Water Supply Shortage Stages and Conditions

| Stage No. | Water Shortage Supply Conditions | Shortage Percent |
|---|---|---|
| I | Minimum | 5 - 10 |
| II | Moderate | 10 - 20 |
| III | Severe | 20 - 35 |
| IV | Critical | 35 - 50 |

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

The actions to be undertaken during each stage include, but are not limited to, the following:

**Stage I (5 - 10 percent shortage)** – Water alert conditions are declared and voluntary conservation is encouraged. The drought situation is explained to the public and governmental bodies. GSWC explains the possible subsequent water shortage stages in order to forecast possible future actions for the customer base. The activities performed by GSWC during this stage include, but are not limited to:

- Public information campaign consisting of distribution of literature, speaking engagements, website updates, bill inserts, and conversation messages printed in local newspapers.
- Educational programs in area schools.
- Conservation Hotline, a toll-free number with trained Conservation Representatives to answer customer questions about conservation and water use efficiency.

**Stage II (10 - 20 percent shortage)** – Stage II will include actions undertaken in Stage I. In addition, GSWC may propose voluntary conservation allotments and/or require mandatory conservation rules. The severity of actions depends upon the percent shortage. The level of voluntary or mandatory water use reduction requested from the customers is also based on the severity. It needs to be noted that prior to implementation of any mandatory reductions, GSWC must obtain approval from CPUC. If necessary, GSWC may also support passage of drought ordinances by appropriate governmental agencies.

**Stage III (20 - 35 percent shortage)** – Stage III is a severe shortage that entails or includes allotments and mandatory conservation rules. This phase becomes effective upon notification by the GSWC that water usage is to be reduced by a mandatory percentage. GSWC implements mandatory reductions after receiving approval from CPUC. Rate changes are implemented to penalize excess usage. Water use restrictions are put into effect, i.e. prohibited uses can include restrictions of daytime hours for watering, excessive watering resulting in gutter flooding, using a hose without a shutoff device, use of non-recycling fountains, washing down sidewalks or patios, unrepaired leaks, etc. GSWC monitors production weekly for compliance with necessary reductions. Use of flow restrictors is implemented if abusive practices are documented.

**Stage IV (35 - 50 percent shortage)** – This is a critical shortage that includes all steps taken in prior stages regarding allotments and mandatory conservation. All activities are intensified and production is monitored daily by GSWC for compliance with necessary reductions.

## 8.2 Minimum Supply

The Act requires an estimate of the minimum water supply available during each of the next 3 water years based on the driest three-year historic sequence for GSWC's existing water supply sources.

Table 8-2 summarizes the minimum volume of water available from each existing source during the next three years based on multiple-dry water years and normal water year. The driest three-year historic sequence is provided in Chapter 6. The water supply quantities for 2011 to 2013 are calculated by linearly interpolating between the projected water supplies of 2010 and 2015 for normal years. The water supplies for 2010 and 2015 are presented in Chapter 4.

MWDOC has provided analysis that estimates minimum water supplies in multiple-dry year periods will be greater than minimum supplies in normal year periods (see MWDOC's 2010 UWMP for details). Increases in water supply during multiple-dry year periods result from increased imported water to offset the reduction in groundwater supplies.

It is assumed that the multiple-dry year supplies will be the same as those for the normal years because imported water supplies will meet projected imported water demands under all anticipated hydrologic conditions.

GSWC's supply for the West Orange System is expected to be 100 percent reliable from 2011 to 2013. This reliability is a result of:

- Groundwater supplies and the projected reliability of MWDOC, a member agency of Metropolitan, which expects to provide reliable imported water supplies.

- Projects implemented by OCWD to ensure reliability of the Orange County Groundwater Basin (see Chapters 4 and 6 for details).

| Table 8-2: Three-Year Estimated Minimum Water Supply in ac-ft/yr | | | | |
|---|---|---|---|---|
| **Source** | **2011** | **2012** | **2013** | **2010 Average Year** |
| Imported water from MWDOC | 4,417 | 5,080 | 5,743 | 5,027 |
| Groundwater | 11,533 | 11,533 | 11,533 | 10,260 |
| Recycled water | 0 | 0 | 0 | 0 |
| Total | 15,950 | 16,613 | 17,276 | 15,287 |

Note:
This table is based on the DWR Guidebook Table 31.

## 8.3 Catastrophic Supply Interruption Plan

The Act requires documentation of actions to be undertaken by the water supplier to prepare for, and implement during, a catastrophic interruption of water supplies. A catastrophic interruption constitutes a proclamation of a water shortage and could result from any event (either natural or man-made) that causes a water shortage severe enough to classify as either a Stage III or Stage IV water supply shortage condition.

In order to prepare for catastrophic events, GSWC has prepared an Emergency Response Plan (ERP) in accordance with other state and federal regulations. The purpose of this plan is to design actions necessary to minimize the impacts of supply interruptions due to catastrophic events.

The ERP coordinates overall company response to a disaster in any and all of its districts. In addition, the ERP requires each district to have a local disaster plan that coordinates emergency responses with other agencies in the area. The ERP also provides details on actions to be undertaken during specific catastrophic events. Table 8-3 provides a summary of actions cross-referenced against specific catastrophes for three of the most common possible catastrophic events: regional power outage, earthquake, and malevolent acts.

In addition to specific actions to be undertaken during a catastrophic event, GSWC performs maintenance activities, such as annual inspections for earthquake safety, and budgets for spare items, such as auxiliary generators, to prepare for potential events.

| Table 8-3: Summary of Actions for Catastrophic Events | |
|---|---|
| **Possible Catastrophe** | **Summary of Actions** |
| Regional power outage | • Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water.<br>• Establish water distribution points and ration water if necessary.<br>• If water service is restricted, attempt to provide potable water tankers or bottled water to the area.<br>• Make arrangements to conduct bacteriological tests, in order to determine possible contamination.<br>• Utilize backup power supply to operate pumps in conjunction with elevated storage. |
| Earthquake | • Assess the condition of the water supply system.<br>• Complete the damage assessment checklist for reservoirs, water treatment plants, wells and boosters, system transmission and distribution.<br>• Coordinate with Cal EMA utilities group or fire district to identify immediate fire fighting needs.<br>• Isolate areas that will take the longest to repair and/or present a public health threat. Arrange to provide emergency water.<br>• Prepare report of findings, report assessed damages, advise as to materials of immediate need and identify priorities including hospitals, schools and other emergency operation centers.<br>• Take actions to preserve storage.<br>• Determine any health hazard of the water supply and issue any “Boil Water Order” or “Unsafe Water Alert” notification to the customers, if necessary.<br>• Cancel the order or alert information after completing comprehensive water quality testing.<br>• Make arrangements to conduct bacteriological tests, in order to determine possible contamination. |
| Malevolent acts | • Assess threat or actual intentional contamination of the water system.<br>• Notify local law enforcement to investigate the validity of the threat.<br>• Get notification from public health officials if potential water contamination<br>• Determine any health hazard of the water supply and issue any “Boil Water Order” or “Unsafe Water Alert” notification to the customers, if necessary.<br>• Assess any structural damage from an intentional act.<br>• Isolate areas that will take the longest to repair and or present a public health threat. Arrange to provide emergency water. |

## 8.4 Prohibitions, Penalties, and Consumption Reduction Methods

The Act requires an analysis of mandatory prohibitions, penalties, and consumption reduction methods against specific water use practices which may be considered excessive during water shortages. Given that GSWC is an investor-owned entity, it does not have the authority to pass any ordinance enacting specific prohibitions or penalties. In order to enact or rescind any prohibitions or penalties, GSWC would seek approval from CPUC to enact or rescind Rule No. 14.1, Mandatory Conservation and Rationing, which is included in Appendix D. When Rule No. 14.1 has expired or is not in effect, mandatory conservation and rationing measures will not be in force.

Rule No. 14.1 details the various prohibitions and sets forth water use violation fines, charges for removal of flow restrictors, as well as establishes the period during which mandatory conservation and rationing measures will be in effect. The prohibitions on various wasteful water uses, include, but are not limited to, the hose washing of sidewalks and driveways using potable water, and cleaning for filling decorative fountains. Table 8-4 summarizes the various prohibitions and the stages during which the prohibition becomes mandatory.

Table 8-4: Summary of Mandatory Prohibitions

| Examples of Prohibitions | Stage When Prohibition Becomes Mandatory |
|---|---|
| Uncorrected plumbing leaks | II, III, IV |
| Watering which results in flooding or run-off in gutters, waterways, patios, driveway, or streets | II, III, IV |
| Washing aircraft, cars, buses, boats, trailers, or other vehicles without a positive shut-off nozzle on the outlet end of the hose | II, III, IV |
| Washing buildings, structures, sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas in a manner which results in excessive run-off | II, III, IV |
| Irrigation of non-permanent agriculture | II, III, IV |
| Use of water for street watering with trucks or for construction purposes unless no other source of water or other method can be used | II, III, IV |
| Use of water for decorative fountains or the filling or topping off of decorative lakes or ponds | II, III, IV |
| Filling or refilling of swimming pools | II, III, IV |

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

In addition to prohibitions during water supply shortage events requiring a voluntary or mandatory program, GSWC will make available to its customers water conservation kits as required by GSWC's Rule No. 20. GSWC will notify all customers of the availability of conservation kits.

In addition to prohibitions, Rule No. 14.1 provides penalties and charges for excessive water use. The enactment of these penalties and charges is contingent on approval of Rule 14.1 implementation by the CPUC. When the rule is in effect, violators receive one verbal and one written warning after which a flow-restricting device may be installed in the violator's service for a reduction of up to 50 percent of normal flow or 6 ccf per month, whichever is greater. Table 8-5 summarizes the penalties and charges and the stage during which they take effect.

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

| Penalties or Charges | Stage When Penalty Takes Effect |
|---|---|
| Penalties for not reducing consumption | III, IV |
| Charges for excess use | III, IV |
| Flat fine; Charge per unit over allotment | III, IV |
| Flow restriction | III, IV |
| Termination of service | III, IV |

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

In addition to prohibitions and penalties, GSWC can use other consumption reduction methods to reduce water use up to 50 percent. Based on the requirements of the Act, Table 8-6 summarizes the methods that can be used by GSWC in order to enforce a reduction in consumption, where necessary.

| Table 8-6: Summary of Consumption Reduction Methods | | |
|---|---|---|
| **Consumption Reduction Method** | **Stage When Method Takes Effect** | **Projected Reduction Percentage** |
| Demand reduction program | All Stages | N/A |
| Reduce pressure in water lines; Flow restriction | III, IV | N/A |
| Restrict building permits; Restrict for only priority uses | II, III, IV | N/A |
| Use prohibitions | II, III, IV | N/A |
| Water shortage pricing; Per capita allotment by customer type | II, IV | N/A |
| Plumbing fixture replacement | All Stages | N/A |
| Voluntary rationing | II | N/A |
| Mandatory rationing | III, IV | N/A |
| Incentives to reduce water consumption; Excess use penalty | III, IV | N/A |
| Water conservation kits | All Stages | N/A |
| Education programs | All Stages | N/A |
| Percentage reduction by customer type | III, IV | N/A |

Note:
This table is based on the DWR Guidebook Table 37.

## 8.5 Revenue Impacts of Reduced Sales

Section 10632(g) of the Act requires an analysis of the impacts of each of the actions taken for conservation and water restriction on the revenues and expenditures of the water supplier. Because GSWC is an investor-owned water utility and, as such, is regulated by the CPUC, the CPUC authorizes it to establish memorandum accounts to track expenses and revenue shortfalls caused by both mandatory rationing and voluntary conservation efforts. Utilities with CPUC-approved water management plans are authorized to implement a surcharge to recover revenue shortfalls recorded in their drought memorandum accounts. Table 8-7 provides a summary of actions with associated revenue reductions; while Table 8-8 provides a summary of actions and conditions that impact expenditures. Table 8-9 summarizes the proposed measures to overcome revenue impacts. Table 8-10 provides a summary of the proposed measures to overcome expenditure impacts.

| Table 8-7: Summary of Actions and Conditions that Impact Revenue | |
|---|---|
| **Type** | **Anticipated Revenue Reduction** |
| Reduced sales | Reduction in revenue will be based on the decline in water sales and the corresponding quantity tariff rate |
| Recovery of revenues with CPUC-approved surcharge | Higher rates may result in further decline in water usage and further reduction in revenue |

| Table 8-8: Summary of Actions and Conditions that Impact Expenditures | |
|---|---|
| **Category** | **Anticipated Cost** |
| Increased staff cost | Salaries and benefits for new hires required to administer and implement water shortage program |
| Increased O&M cost | Operating and maintenance costs associated with alternative sources of water supply |
| Increased cost of supply and treatment | Purchase and treatment costs of new water supply |

| Table 8-9: Proposed Measures to Overcome Revenue Impacts | |
|---|---|
| **Names of Measures** | **Summary of Effects** |
| Obtain CPUC-approved surcharge | Allows for recovery of revenue shortfalls brought on by water shortage program |
| Penalties for excessive water use | Obtain CPUC approval to use penalties to offset portion of revenue shortfall |

| Table 8-10: Proposed Measures to Overcome Expenditure Impacts | |
|---|---|
| **Names of Measures** | **Summary of Effects** |
| Obtain CPUC-approved surcharge | Allows for recovery of increased expenditures brought on by water shortage program |
| Penalties for excessive water use | Obtain CPUC approval to use penalties to offset portion of increased expenditures |

## 8.6 Water-Use Monitoring Procedures

The Act asks for an analysis of mechanisms for determining actual reduction in water use when the Water Shortage Contingency Plan is in effect. Table 8-11 lists the possible mechanisms used by GSWC to monitor water use and the quality of data expected.

Table 8-11: Water-Use Monitoring Mechanisms

| Mechanisms for Determining Actual Reductions | Type and Quality of Data Expected |
|---|---|
| Customer meter readings | Hourly/daily/monthly water consumption data for a specific user depending on frequency of readings |
| Production meter readings | Hourly/daily/monthly water production depending on frequency of readings; correlates to water use plus system losses |

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

# Chapter 9: References


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

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

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

California Department of Water Resources (DWR). 2003. *California's Groundwater: Bulletin 118-2003*. <http://www.water.ca.gov/groundwater/bulletin118/gwbasin_maps_descriptions.cfm>

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

County of Orange California. Public Works. *2008 - 2014 Housing Element Update*. Santa Ana: 2011.

Municipal Water District of Orange County (MWDOC). 2010 Urban Water Management Plan. Malcolm Prirnie, Inc. June 2011.

Municipal Water District of Orange County (MWDOC). 2005. *Draft 2005 Urban Water Management Plan*. October.

Orange County Water District (OCWD). Groundwater Management Plan 2009 Update. 2009.

Seckel P.E., Karl. *South Orange Coastal Ocean Desalination Project*. March 2010. February 2011 <www.mwdoc.com/services/desalination>.

Southern California Association of Governments (SCAG) Projections. 2008. *Growth Forecast*. <http://www.scag.ca.gov/rtp2008/2008draft/techappendix/Appendix_A_final.pdf>.

UWMP. 2005. *Urban Water Management Plan for West Orange Customer Service Area*. CH2MHill. December 2005.

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

THIS PAGE INTENTIONALLY BLANK

# Appendix A

Urban Water Management Planning Act

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

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



## WATER CODE
## SECTION 10610-10610.4

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

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

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

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

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

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

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

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

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

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

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

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

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

## WATER CODE
## SECTION 10611-10617

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

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

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

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

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

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

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

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

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

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

## WATER CODE
## SECTION 10620-10621

**10620.** (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

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

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

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

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

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

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

**10621.** (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water

supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

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

# WATER CODE
# SECTION 10630-10634

**10630.** It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

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

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

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

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

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

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

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

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

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

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

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

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

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

(I) Agricultural.

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

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

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

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

(B) Residential plumbing retrofit.

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

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

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

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

(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.
(2) A schedule of implementation for all water demand management measures proposed or described in the plan.
(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
(2) Include a cost-benefit analysis, identifying total benefits and total costs.
(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California,"

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(i) Compliance on an individual basis.

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

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

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

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

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

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

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

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

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

**10632.** (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

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

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic

sequence for the agency's water supply.

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

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

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

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

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

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

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

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

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

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

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

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

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

(e) The projected use of recycled water within the supplier's

service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

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

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

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

## WATER CODE SECTION 10635

**10635.** (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

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

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

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

# WATER CODE
# SECTION 10640-10645

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

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

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

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

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

**10644.** (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

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

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

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

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

**10645.** Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

# WATER CODE
# SECTION 10650-10656

**10650.** Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

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

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

**10651.** In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

**10652.** The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

**10653.** The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

**10654.** An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the

"Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

**10655.** If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

**10656.** An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

# Appendix B

Public Hearing Notices, Notifications, and Meeting Minutes

June 8, 2011

City of Cypress
David Belmer
Community Development Director
P.O. Box 609
Cypress, CA 90630

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear David:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Garden Grove
Matthew Fertal
Director of Planning Department
P.O. Box 3070
Garden Grove, CA 92842

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Matthew:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Irwindale
Tonya Pace
Director of Planning
5050 North Irwindale Ave.
Irwindale, CA 91706

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Tonya:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of La Palma
Douglas Dumhart
Director of Community Development
7822 Walker Street
La Palma, CA 90623

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Douglas:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Los Alamitos
John Godlewski
Community Development Director
3191 Katella Avenue
Los Alamitos, CA 90720

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear John:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Orange
Alice Angus
Community Development Director
P. O. Box 449
Orange, CA 92866

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Alice:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

`

June 8, 2011

City of Placentia
401 East Chapman Avenue
Placentia, CA 92870

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Seal Beach
Sean Crumby
Director of the Planning Department
211 8th Street
Seal Beach, CA 90740

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Sean:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

`

June 8, 2011

City of Stanton
Steve Harris
Community Development Director
7800 Katella Avenue
Stanton, CA 90680

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Steve:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

City of Yorba Linda
Planning and Development Services
4845 Loma Avenue
Yorba Linda, CA 92886

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

June 8, 2011

County of Orange County
Francisco Alonso
Director of Planning and Development
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Subject: Notification of Public Hearing for the 2010 Urban Water Management Plan (UWMP) Golden State Water Company – Cowan Heights, Placentia and West Orange Water Systems.

Dear Francisco:

Golden State Water Company (GSWC) is providing you this notice pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan for the following water systems: Cowan Heights, Placentia and West Orange

The UWMP's will be available for public review prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plan at:

***Placentia and Cowan Heights Plans***
Placentia Customer Service Office
500 Cameron Street, Placentia

***West Orange Plan***
Los Alamitos Customer Service Center
10852 Cherry Street
Los Alamitos, CA 90720

A public hearing to solicit comments on the draft UWMP will be held at 6:00 p.m., on Tuesday, August 9, 2011 and take place at:

Backs Community Building
201 North Bradford Avenue, Placentia, CA

If you have any questions please contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernie Gisler
Planning Manager

## .AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA, )
) ss.
County of Orange )

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 1/18/52, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

June 6, 2011

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: June 6, 2011

Julie Rammell
Signature

**The Orange County Register**
**625 N. Grand Ave.**
**Santa Ana, CA 92701**
**(714) 796-7000 ext. 2209**

**PROOF OF PUBLICATION**

Proof of Publication of

Golden State
Water Company
A Subsidiary of American States Water Company

**Notice of Public Hearing**

In conformance with the California Urban Water Management Planning Act, Golden State Water Company (GSWC) is hosting a public hearing on August 9, from 6 p.m. to 7 p.m. at the Backs Community Building, 201 North Bradford Avenue, Placentia, to solicit comments on the Urban Water Management Plans (UWMPs) for the company's Cowan Heights, Placentia and West Orange water systems.

The company's Cowan Heights Water System serves customers in portions of Lemon Heights and Cowan Heights.

GSWC's Placentia Water System serves customers in portions of Placentia and Yorba Linda.

GSWC's West Orange Water System serves customers in Cypress, Los Alamitos, unincorporated Orange County, Orange, Rossmoor, Seal Beach, and Stanton.

The UWMPs are available for public review one week prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plans at the following locations:

(Placentia and Cowan Heights plans)
Placentia Customer Service Office
500 Cameron Street Placentia, CA 92870

(West Orange plan)
Los Alamitos Customer Service Office
10852 Cherry Street
Los Alamitos, CA 90720

For more information, visit www.gswater.com.
CNS#2112323

*A0000022278 43*

California Newspaper Service Bureau®
Public Notice Advertising Since 1934
Tel 1-800-788-7840 ▫ Fax 1-800-474-9444
Local Offices and Representatives in
Los Angeles, Santa Ana, San Diego, Riverside/San Bernardino,
San Francisco, Oakland, San Jose, Santa Rosa, Sacramento
Special Services Available in Phoenix

# DECLARATION

I am a resident of Los Angeles County, over the age of eighteen years and not a party to any or interested in the matter noticed.

The notice, of which the annexed is a printed copy appeared in the:

ORANGE COUNTY REGISTER

On the following dates:

June 17 & 24

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

Dated at Los Angeles, California, this
24 day of June 2011

Signature

2121473

*"The only Public Notice which is justifiable from the standpoint of true economy and the public interest, is that which reaches those who are affected by it"*

* A 0 0 0 0 0 2 2 4 1 5 2 4 *

Golden State
Water Company
A Subsidiary of American States Water Company

**Notice of Public Hearing**

In conformance with the California Urban Water Management Planning Act, Golden State Water Company (GSWC) is hosting a public hearing on August 9, from 6 p.m. to 7 p.m. at the Backs Community Building, 201 North Bradford Avenue, Placentia, to solicit comments on the Urban Water Management Plans (UWMPs) for the company's Cowan Heights, Placentia and West Orange water systems.

The company's Cowan Heights Water System serves customers in portions of Lemon Heights and Cowan Heights.

GSWC's Placentia Water System serves customers in portions of Placentia and Yorba Linda.

GSWC's West Orange Water System serves customers in Cypress, Los Alamitos, unincorporated Orange County, Orange, Rossmoor, Seal Beach, and Stanton.

The UWMPs are available for public review one week prior to the public hearing and can be reviewed during normal business hours. Please call 1-800-999-4033 to make an appointment to view the plans at the following locations:

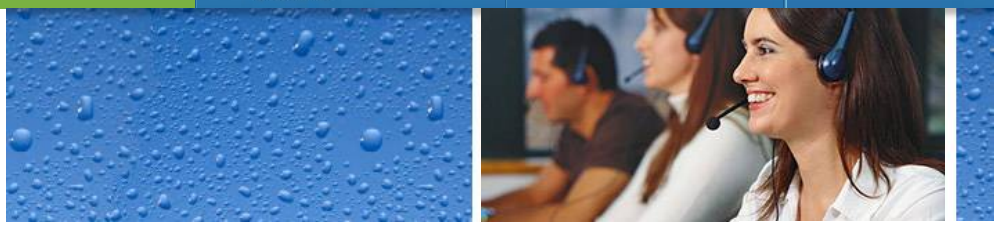
(Placentia and Cowan Heights plans)
Placentia Customer Service Office
500 Cameron Street Placentia, CA 92870

(West Orange plan)
Los Alamitos Customer Service Office
10852 Cherry Street
Los Alamitos, CA 90720

For more information, visit www.gswater.com.
CNS#2121473

Golden State Water Company
A Subsidiary of American States Water Company





Customer Service Home Page
Find Local Office Information
Payment Options
Understanding Your Bill
How to Read Your Meter
Definitions and Terminology
Frequently Asked Questions
New Customer Brochure

For 24-hour customer service or emergency please call

**1-800-999-4033**
24 hours, 7 days a week

**877-933-9533**
TTY (hearing impaired)

Find Local Office Information » Placentia

# Placentia Customer Service Area

Areas Serviced
This Customer Service Area serves approximately 15,300 customers in Placentia and portions of Anaheim, Cowan Heights, Lemon Heights, Orange, Santa Ana, and Yorba Linda

Office Location
Placentia CSA
500 Cameron Street
Placentia, CA 92870

24 hour Customer Service and Emergency
800-999-4033 (24 hours, 7 days a week)
877-933-9533 (TTY hearing impaired)
Email: customerservice@gswater.com

WATER CONSERVATION TIPS

Don't use the toilet as a wastebasket and save up to 200 gallons of water a month.

## Urban Water Management Plan Public Meeting Notice

Golden State Water Company is in the process of updating its existing Urban Water Management Plan and is seeking public input. The plan is expected to be available for review one week prior to the meeting date.

See public notice for more information.

## GSWC Files a Cost of Capital Application

A Cost of Capital application was filed May 2, 2011 with the the California Public Utilities Commission (CPUC). The CPUC regulates GSWC to ensure adequate levels of service are provided at the lowest reasonable costs.

In this filing, GSWC is requesting for the CPUC to review and authorize an increase in the cost of capital reflected in rates for 2012, 2013, and 2014. A decision is expected in December 2011.

A copy of the application is here.

## New Rates Established in Placentia Customer Service Area for 2011 and 2012

The California Public Utilities Commission (CPUC), which regulates Golden State Water Company (GSWC) to ensure adequate levels of service are provided at the lowest reasonable costs, issued a final decision on the company's 2008 General Rate Case on Nov. 19, 2010. The decision established rates for GSWC to charge customers for 2010, 2011 and 2012 in its Region III, which includes the Placentia Customer Service Area.

Fact Sheet

## RATES, SCHEDULES & TARIFFS

Residential Metered Service
Non-Residential Metered Service
Mandatory Conservation-Rationing (Schedule 14.1)

CLICK HERE to view all our rates, tariffs and advice letters

## Third Tier Added to Tiered Rates for Placentia Customer Service Area to Encourage Water Use Efficiency

Golden State Water Company (GSWC) residential customers in the utility's Placentia Customer Service Area (CSA) had a third tier added to their tiered rates to promote water use efficiency.

The change, approved by the California Public Utilities Commission, began in December 2010. GSWC will not exceed CPUC authorized revenues as a result of tiered rates.

Here's how tiered rates work. Customers get charged for each unit of water they use. A unit is equal to one hundred cubic feet of water, or Ccf (748 gallons). In the Placentia CSA, residential customers will pay the lowest rate for each Ccf they use in tier one, up to 13 Ccf. For every unit of water used in tier two, which is 14-21 Ccf, customers will pay a 15 percent higher rate. In tier three, customers will pay an additional 15 percent for every unit of water from 22 Ccf and above.

The top of the first tier is based on the average winter month usage for the service area. The top of second tier is based on the midpoint between the annual average usage and the average summer month usage for the service area. The per unit price differential between each tier is approximately 15 percent, a sufficient amount to encourage water use efficiency.

For more information, see our Residential Metered Service tariff in the article above.

## LOW INCOME PROGRAM
### California Alternate Rates for Water (CARW)

Golden State Water Company offers a discount through the California Alternate Rates for Water (CARW) program to eligible customers. The amount of the discount is $8 per month, which is equal to 15 percent of the average bill in your customer service area.

If you qualify for a rate discount on your electricity, you may be eligible for a discount on your water bill. Qualifications are based on the number of people living in your home and your total household income, including wages, government checks and benefits, and other financial support you and members of your family receive.

For further information, see the application below or contact our CARW hotline at (866) 360-CARW (2279).

Application (English)
Application (Spanish)

### Golden State Water Company's Water Shortage Plan Becomes Voluntary for Orange County Customers

Golden State Water Company's water shortage plan (Schedule 14.1) for its Orange County customers has been reduced from a mandatory stage to a voluntary stage.

Customers will continue to receive water allocations based on a 6 percent reduction from historical average usage for the property. However, if customers exceed the allocation, no premium penalties will be assessed. Customers will still be encouraged to meet their conservation goals and a list of water-use restrictions will remain in effect. See list of restrictions.

Should a mandatory allocation stage be re-implemented, customers would be notified in advance and exception forms would be available for customers to request an allocation adjustment. For example, if a household added several people since 2006, or if customers require additional water for medical needs, they may be eligible for a higher water budget. Water conservation practices and devices may be evaluated as part of the exception evaluation process. Since the targeted reductions in the current stage for Orange County customers are voluntary, allocation forms will not be processed at this time.

For more information, please call our customer service center at 1-800-999-4033 or see the customer brochure here.

## WATER CONSERVATION REBATE PROGRAMS

Golden State Water Company partners with other agencies to offer various rebate programs as an incentive for customers to purchase water-efficient products. Here are some programs created for Placentia Customer Service Area customers. Funding is limited.

High-Efficiency Clothes Washer (HECW) Rebates
For single-family homes call 1-888-376-3314 or visit www.socalwatersmart.com.
Up to $85 rebate for those who qualify.

High-Efficiency Toilet (HET) Rebates
Up to $125 for qualifying customers. Click here for application or call 1-800-999-4033.

Rotating Nozzles and Pressure Regulating Sprinkler Heads
Single-family homes, call 888-376-3314 or visit www.socalwatersmart.com.
Up to $4 per set rebate for those who qualify.

Weather-based Irrigation Controller (SmarTimer)
Single-family homes and multi-family buildings up to four units,
call 888-376-3314 or visit www.socalwatersmart.com.
Up to $25 rebate per station for those who qualify.

SmarTimer rebates for multi-family buildings with more than four units are currently no longer available due to overwhelming public response.

To learn more about any of our current rebate programs, please call customer service at 800-999-4033.

## WATER QUALITY ANNUAL REPORT

Cowan Heights
Placentia
Yorba Linda



Terms of Use | Privacy Policy

Home Page | About Golden State Water Company | Customer Service | Find Your Local Office | Understanding Your Bill
Conservation Information and Rebate Programs | Rates, Schedules and Tariffs | Water Quality | Contact Us

For 24-hour emergency and customer service, please call: 1-800-999-4033 or 877-933-9533 TTY (hearing impaired)
customerservice@gswater.com

Website design by NetPilot Web Solutions

No Meeting Minutes were taken since there was no attendance by the public.

# Appendix C

Council Annual Reports for Demand Management Measures

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

**Primary Contact** John Turner **Telephone** (909) 394-3600 Ext **Email:** johnturner@gswater.com

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

| | |
|---|---|
| **GPCD in 2010** | **168** |
| **GPCD Target for 2018** | 170 |

| Year | Report | Target | | Highest Acceptable Bound | |
|---|---|---|---|---|---|
| | | % Base | GPCD | % Base | GPCD |
| 2010 | 1 | 96.4% | 200 | 100% | 208 |
| 2012 | 2 | 92.8% | 193 | 96% | 200 |
| 2014 | 3 | 89.2% | 185 | 93% | 193 |
| 2016 | 4 | 85.6% | 178 | 89% | 185 |
| 2018 | 5 | 82.0% | 170 | 82% | 170 |

Not on Track if 2010 GPCD is ≥ than target

| | |
|---|---|
| GPCD in 201 | 168 |
| Highest Acceptable GPCD for | 208 |

**On Track**

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

## Foundational BMPs

### BMP 1.1 Operational Practices

Conservation Coordinator provided with necessary resources to implement BMPs?

| | | 2009 | 2010 |
|---|---|---|---|
| 1.Conservation Coordinator provided with necessary resources to implement BMPs? | Name | Albert Frias | Albert Frias |
| | Title | Water Conservation Coordinator | Water Conservation Coordinator |
| | Email | | |
| | | **On Track** | **On Track** |

2. Water waste prevention documentation

| | | |
|---|---|---|
| Descriptive File | Rule 20 = Water Conservation. Rule 11B = Discontinuance of Service based upon Water Wastage. R | On Track if any one of the 6 ordinance actions done, plus documentation or links provided |
| Descriptive File 2010 | | |
| URL | | |
| URL 2010 | | |
| Describe Ordinance Terms | Where negligent or wasteful use of water exists on customer's premises, the utility may discontinue the service if such practices are not remedied within five days after it has given the customer written notice to such effect. http://www.aswater.com/Organization/Rates_and_Regulations/Rates_and_Tariffs/Rule_11.pdf | |
| | **On Track** **On Track** | |

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

### BMP 1.2 Water Loss Control

| | 2009 | | |
|---|---|---|---|
| Complete a prescreening Audit | Yes | On Track | On Track if Yes |
| Metered Sales | 25,770 | | |
| Verifiable Other Uses | 135 | | |
| Total Supply | 28,005 | | |
| (Metered Sales + System uses)/ Total Supply >0.89 | 0.93 | On Track | On Track if =>.89, Not on Track if No |
| If ratio is less than 0.9, complete a full scale Audit in 2009? | No | | On Track if Yes |
| Verify Data with Records on File? | Yes | On Track | On Track if Yes |
| Operate a system Leak Detection Program? | Yes | On Track | On Track if Yes |

| | 2010 | | |
|---|---|---|---|
| Compile Standard Water Audit using AWWA Software? | Yes | On Track | On Track if Yes, Not on Track if No |
| AWWA file provided to CUWCC? | Yes | On Track | On Track if Yes, Not on Track if No |
| AWWA Water Audit Validity Score? | 84 | | Info only until 2012 |
| Completed Training in AWWA Audit Method? | Yes | | |
| Completed Training in Component Analysis Process? | No | | Info only until 2012 |
| Complete Component Analysis? | No | | Info only until 2012 |
| Repaired all leaks and breaks to the extent cost effective? | Yes | On Track | On Track if Yes, Not on Track if No |
| Locate and repair unreported leaks to the extent cost effective. | Yes | On Track | On Track if Yes, Not on Track if No |
| Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. | Yes | | Info only until 2012 |

Provided 7 types of Water Loss Control Info

| Leaks Repaired | Value Real Losses | Value Apparent Losses | Miles Surveyed | Press Reduction | Cost of Interventions | Water Saved |
|---|---|---|---|---|---|---|
| 18 | $1,540.00 | $1,540.00 | 38 | | | 41 |

Info only until 2012

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

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

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

| | | 2009 | | 2010 | | |
|---|---|---|---|---|---|---|
| Exemption or 'At least as Effective As' accepted by CUWCC | | | | | | |
| Numbered Unmetered Accounts | 2008 | 0 | On Track | 0 | On Track | On Track if no unmetered accounts |
| Metered Accounts billed by volume of use | | Yes | On Track | Yes | On Track | Volumetric billing required for all connections on same schedule as metering |
| Number of CII accounts with Mixed Use meters | | 560 | | 567 | | Info only |
| Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? | | No | | No | | Info only until 2012 |
| Feasibility Study provided to CUWCC? | | No | On Track until 2012 | No | On Track until 2012 | On Track if Yes, Not on Track if No |
| Completed a written plan, policy or program to test, repair and replace meters | | Yes | On Track | Yes | On Track | On Track if Yes, Not on Track if No |

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

**Primary Contact** John Turner **Email:** johnturner@gswater.com

### 1.4 Retail Conservation Pricing

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

**Metered Water Rate Structure**

| Customer Class | 2009 Rate Type | Conserving Rate? | Customer Class | 2010 Rate Type | Conserving Rate? |
|---|---|---|---|---|---|
| Single-Family | Increasing Block | Yes | Single-Family | Increasing Block | Yes |
| Multi-Family | Increasing Block | Yes | Multi-Family | Increasing Block | Yes |
| Commercial | Uniform | Yes | Commercial | Uniform | Yes |
| Industrial | Uniform | Yes | Industrial | Uniform | Yes |
| Institutional | Uniform | Yes | Institutional | Uniform | Yes |
| | On Track | | | On Track | |

Year Volumetric Rates began for Agencies with some Unmetered Accounts

Info only

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

**Agency:** Golden State Water Company **District Name:** Orange County **CUWCC Unit #:** 5043
**Retail**

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

**Adequacy of Volumetric Rates) for Agencies with No Unmetered Accounts**

| Customer Class | 2009 Rate Type | 2009 Volumetric Revenues $1000s | 2010 Rate Type | 2010 Volumetric Revenues $1000s |
|---|---|---|---|---|
| Single-Family | Increasing Block | $ 16,759 | Single-Family | $ 23,053 |
| Multi-Family | Increasing Block | $ 698 | Multi-Family | $ 961 |
| Commercial | Uniform | $ 9,296 | Commercial | $ 12,787 |
| Industrial | Uniform | $ 137 | Industrial | $ 189 |
| Institutional | Uniform | $ 1,943 | Institutional | $ 2,673 |
| Dedicated Irrigation | | $ 708 | | $ 973 |
| Other | | $ 181 | | $ 250 |
| Total Revenue Commodity Charges (V): | | $ 29,722 | | $ 40,886 |
| Total Revenue Fixed Charges (M): | | $ 17,347 | | $ 23,862 |
| Calculate: V / (V + M): | | 63% | | 63% |
| | | Info Only untill 2011 | | Info Only untill 2011 |

Agency Choices for rates:

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

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

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

**Wastewater Rates**

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

| Customer Class | 2009 Rate Type | Conserving Rate? | Customer Class | 2010 Rate Type | Conserving Rate? |
|---|---|---|---|---|---|
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | Yes | | | Yes |
| | | On Track | | | On Track |

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

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

### BMP 2. EDUCATION PROGRAMS

**BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC**

| | 2009 | 2010 | |
|---|---|---|---|
| Does a wholesale agency implement Public Outrach Programs for this unility's benefit? | Yes | **Yes** | Yes/No |
| Names of Wholesale Agencies | **Metropolitan Water District of Los Angeles, Orange County Municipal Water District** | **Metropolitan Water District of Los Angeles, Orange County Municipal Water District** | |
| 1) Contacts with the public (minimum = 4 times per year) | 14 | 2 | |
| 2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly). | 8 | 4 | |
| 3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly). | Yes | Yes | All 6 action types implemented and reported to CUWCC to be 'On Track') |
| 4) Description of materials used to meet minimum requirement. | General water conservation information<br>Website<br>Newsletter articles on conservation<br>Newsletter articles on conservation<br>Newspaper contacts<br>Television contacts | General water conservation information<br>Website<br>Newsletter articles on conservation<br>Newsletter articles on conservation<br>Newspaper contacts<br>Television contacts | |
| 5) Annual budget for public outreach program. | $ 10,632 | $ 10,632 | |
| 6) Description of all other outreach programs | Description is too large for text area. Data will be stored in the BMP Reporting database when online. | Description is too large for text area. Data will be stored in the BMP Reporting database when online. | |
| | **OnTrack** | **On Track** | |

# CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

## Foundation Best Management Practices for Urban Water Efficiency

### 2.2 School Education Programs Implemented and Reported to CUWCC

| | 2009 | 2010 | |
|---|---|---|---|
| Does a wholesale agency implement School Education Programs for this unility's benefit? | Yes | Yes | |
| Name of Wholesale Supplier? | Municipal Water District of Orange County | Municipal Water District of Orange County | |
| 1) Curriculum materials developed and/or provided by agency | Conservation Education material, books, literature, conservation kits | Conservation Education material, books, literature, conservation kits | Yes/ No |
| 2) Materials meet state education framework requirements and are grade-level appropriate? | Yes | Yes | All 5 actions types implemented and reported to CUWCC to be 'On |
| 3) Materials Distributed to K-6? | Yes | Yes | |
| Describe K-6 Materials | Conservation Education material, books, literature, conservation kits | Conservation Education material, books, literature, conservation kits | Describe materials to meet minimum requirements Info Only |
| Materials distributed to 7-12 students? | No | No | |
| 4) Annual budget for school education program. | $ 200,000 | $ 204,000 | |
| | See Wholesale Report On Track | See Wholesale Report On Track | |

# Appendix D

CPUC Water Conservation and Rationing Rules and Regulations

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE

A. Customer's Request for Discontinuance of Service

1. A customer may have service discontinued by giving not less than two day's advance notice thereof to the utility. Charges for service may be required to be paid until the requested date of discontinuance or such later date as will provide not less than the required two days' advance notice.

2. When such notice is not given, the customer will be required to pay for service until two days after the utility has knowledge that the customer has vacated the premises or otherwise has discontinued water service.

B. Discontinuance of Service by Utility

1. For Nonpayment of Bills

a. Past-Due Bills. When bills are rendered monthly or bimonthly, they will be considered past due if not paid within 19 days from the date of mailing. The utility shall allow every residential customer at least 19 days from the date of mailing its bill for services, postage prepaid, to make payment of the bill. The utility may not discontinue residential service for nonpayment of a delinquent account unless the utility first gives notice of the delinquency and impeding discontinuance, at least 10 days prior to the proposed discontinuance, by means of a notice mailed, postage prepaid, to the customer to whom the service is provided if different than to whom the service is billed, not earlier than 19 days from the date of mailing the utility's bill for services. The 10-day discontinuance of service notice shall not commence until five days after the mailing of the notice. (T)

b. When a bill for water service has become past due and a 10-day discontinuance of residential service notice or a 7-day discontinuance of residential service notice for nonpayment has been issued, service may be discontinued if bill is not paid within the time required by such notice. The customer's service, however, will not be discontinued for nonpayment until the amount of any deposit made to establish credit for that service has been fully absorbed.

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

c. Any customer, residential as well as nonresidential, who has initiated a billing complaint or requested an investigation within 5 days of receiving a disputed bill or who has, before discontinuance of service made a request for extension of the payment period of a bill asserted to be beyond the means of the customer to pay in full within the normal period for payment, shall not have residential water service discontinued for nonpayment during the pendency of an investigation by the utility of such customer complaint or request and shall be given an opportunity for review of the complaint, investigation, or request by a review manager of the utility. The review shall include consideration of whether a residential customer shall be permitted to make installment payments on any unpaid balance of the delinquent account over a reasonable period of time, not to exceed 12 months. Such service shall not be discontinued for nonpayment for any customer complying with an installment payment agreement entered into with the utility, provided the customer also keeps current his account for water service as charges accrue in each subsequent billing period. If a residential customer fails to comply with an installment payment agreement, the utility will give a 10-day discontinuance of service notice before discontinuing such service, but such notice shall not entitle the customer to further investigation by the utility.

d. Any customer whose complaint or request for an investigation pursuant to subdivision (c) has resulted in an adverse determination by the utility may appeal the determination to the Commission. Any subsequent appeal of the dispute or complaint to the Commission shall be in accordance with the Commission adopted Rules of Practice and Procedure.

e. Service to a residential water customer will not be discontinued for nonpayment when the customer has previously established to the satisfaction of the utility that:

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

e. (Continued)

(1) The customer is elderly (age 62 or over) or handicapped,* or upon certification of a licensed physical or surgeon that to discontinue water will be life threatening to the customer; and

*Proof of age must be supported by certificate of birth, driver's license, passport or other reliable document. Proof of handicap must be by certification from a licensed physician, surgeon, public health nurse or social worker.

(2) The customer is temporarily unable to pay for such service in accordance with the provisions of the utility's tariffs; and

(3) The customer is willing to arrange installment payments satisfactory to the utility, over a period not to exceed 12 months, including arrangements for prompt payment of subsequent bills.

However, service may be discontinued to any customer who does not comply with an installment payment agreement or keep current his account for water service as charges accrue in each subsequent billing period.

(f) A customer's residential service may be discontinued for nonpayment of a bill for residential service previously rendered him at any location served by the utility.

A nonresidential service may be discontinued for nonpayment of a bill for residential as well as nonresidential service previously rendered him at any location served by the utility.

The discontinuance of service notice as set forth in subdivision (b) will be given in both cases stated above before discontinuance of service takes place.

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

f. (Continued)

Residential services will not, however, be discontinued for nonpayment of bills for separate nonresidential service.

g. Service will not be discontinued by reason of delinquency in payment for service on any Saturday, Sunday, legal holiday, or at any time during which the business offices of the utility are not open to the public.

h. Where water service is provided to residential users in a multi-unit residential structure, mobilehome park, or permanent residential structures in a labor camp, where the owner, manager, or operator is listed by the utility as the customer of record, the utility will make every good faith effort to inform the users, when the account is in arrears, that service will be dicontinued. Notice will be in as prescribed in subdivision (a) above, and in Rules Nos. 5 and 8. (T)

(T)

(1) Where said users are individually metered. (N)

The utility is not required to make service available to these users unless each user agrees to the terms and conditions of service and meets the requirement of the law and the utility's rules and tariffs. However, if one or more users are willing and able to assume responsibility for subsequent charges by these users to the account to the satisfaction of the utility, and if there is a practical physical means, legally available to the utility of selectively providing services to these users who have met the requirements of the utility's rules and tariffs, the utility will make service available to these users. For these selected users establishment of credit will be as prescribed in Rule No. 6, except that where prior service for a period of time is a condition for establishing credit with the utility, proof that is acceptable to the utility of residence and prompt payment of rent or other credit obligation during that period of time is a satisfactory equivalent.

(N)

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

h. (Continued)

(2) Where said users are master metered. (N)

The utility is not required to make service available to these users unless each user agrees to the terms and conditions of service, and meets the requirements of the law and the utility's rules and tariffs and the following:

The same Rule 11, item B.1.h. (1) above which applies to individually metered users also applies to master metered users, except a representative may act on the behalf of a master metered user, and the utility will not discontinue service in any of the following situations:

(a) During the pendency of an investigation by the utility of a master-meter customer dispute or complaint.

(b) When the master-metered customer has been granted an extension of the period for repayment of a bill.

(c) For an indebtedness owned by the master metered customer to any other person or corporation or when the obligation represented by the delinquent account or any other indebtedness was incurred with a person or corporation other than the utility demanding payment therefor.

(d) When a delinquent account relates to another property owned, managed, or operated by the master-metered customer.

(e) When a public health or building officer certifies that determination would result in a significant threat to the health or safety of the residential occupants or the public. Proof of age or handicap are described in Rule 11.B.1.e. (N)

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

i. A reasonable attempt must be made by the utility to personally contact an adult person on the residential customer's premises either by telephone, or in person, at hours prior to discontinuance. For elderly or handicapped residential customers, the utility shall provide at least 48 hours' notice by telephone or in person. For these customers, if telephone or personal contact cannot be made, a notice of discontinuance of service shall be posted in a conspicuous location at the service address at least 48 hours prior to discontinuance. Such notice shall be independent of and in addition to, other notices(s) as may be prescribed in the utility's tariffs. (C) (N) (N) (N)

j. Residential Customer's Remedies Upon Receipt of Discontinuance Notice.

(1) If upon receipt of a 10 day discontinuance notice, a residential customer is unable to pay, he must contact the utility before discontinuance of service to make payment arrangements to avoid discontinuance of service.

(2) If, after contacting the utility, the residential customer alleges to the Commission an inability to pay and that he is unable to make payment arrangements with the utility he should write to the Commission's Consumer Affairs Branch (CAB) to make an informal complaint. This action must be taken within the 10-day discontinuance of service notice.

(3) The CAB's resolution of the matter will be reported to the utility and the residential customer within ten business days after receipt of the informal complaint. If the customer is not satisfied with such resolution, he must file, within ten business days after the date of the CAB's letter, a formal complaint with the Commission under Public Utilities Code Section 1702 on a form provided by the CAB.

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Discontinuance of Services by Utility (Continued)

1. For Nonpayment of Bills (Continued)

j. Residential Customer's Remedies Upon Receipt of Discontinuance Notice.

(4) Failure of the residential as well as the nonresidential customer to observe these time limits shall entitle the utility to insist upon payment or, upon failure to pay, to discontinue the customer's service.

k. Designation of a Third-Party Representative (Elderly or Handicapped only)

(1) Customer must inform utility if he desires that a third party receive discontinuance or other notices on his behalf.

(2) Utility must be advised of name, address and telephone number of third party with a letter from third party accepting this responsibility.

(3) Only customers who certify that they are elderly or handicapped are entitled to third-party representation.*

2. For Noncompliance with Rules

The utility may discontinue service to any customer for violation of these rules after it has given the customer at least five days' written notice of such intention. Where safety of water supply is endangered, service may be discontinued immediately without notice.

3. For Waste of Water

a. Where negligent or wasteful use of water exists on customer's premises, the utility may discontinue the service if such practices are not remedied within five days after it has given the customer written notice to such effect.

(Continued)

* Proof of age must be supported by certificate of birth, driver's license, passport or other reliable document. Proof of handicap must be by certification from a licensed physician, public health nurse or social worker.

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

B. Continuance of Services by Utility (Continued)

3. For Waste of Water (Continued)

b. In order to protect itself against serious and unnecessary waste or misuse of water, the utility may meter any flat rate service and apply the regularly established meter rates where the customer continues to misuse or waste water beyond five days after the utility has given the customer written notice to remedy such practices.

4. For Unsafe Apparatus or Where Service is Detrimental or Damaging to the Utility or its Customers

If an unsafe or hazardous condition is found to exist on the customer's premise, or if the use of water thereon by apparatus, appliances, equipment or otherwise is found to be detrimental or damaging to the utility or its customers, the service may be shutoff without notice. The utility will notify the customer immediately of the reasons for the discontinuance and the corrective action to be taken by the customer before service can be restored.

5. For Fraudulent Use of Service

When the utility has discovered that a customer has obtained service by fraudulent means, or has diverted the water service for unauthorized use, the service to that customer may be discontinued without notice. The utility will not restore service to such customer until that customer has complied with all filed rules and reasonable requirements of the utility and the utility has been reimbursed for the full amount of the service rendered and the actual cost to the utility incurred by reason of the fraudulent use.

C. Restoration of Service

1. Reconnection Charge

Where service has been discontinued for violation of these rules or for nonpayment of bills, the utility may charge $25.00 for reconnection of service during regular working hours or $37.50 (I)
for reconnection of service at other than regular working hours when the customer has requested that the reconnection be made at other than regular working hours.

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

C. Restoration of Service (Continued)

2. To be Made During Regular Working Hours

The utility will endeavor to make reconnections during regular working hours on the day of the request, if the conditions permit; otherwise reconnections will be made on the regular working day following the day the request is made.

3. To Be Made at Other Than Regular Working Hours

When a customer has requested that the reconnection be made at other than regular working hours, the utility will reasonably endeavor to so make the reconnection if practicable under the circumstances.

4. Wrongful Discontinuance

A service wrongfully discontinued by the utility, must be restored without charge for the restoration to the customer within 24 hours.

D. Refusal to Serve

1 Conditions for Refusal

The utility may refuse to serve an applicant for service under the following conditions:

a. If the applicant fails to comply with any of the rules as filed with the Public Utilities Commission.

b. If the intended use of the service is of such a nature that it will be detrimental or injurious to existing customers.

c. If, in the judgment of the utility, the applicant's installation for utilizing the service is unsafe or hazardous, or of such nature that satisfactory service cannot be rendered.

(Continued)

Rule No. 11

DISCONTINUANCE AND RESTORATION OF SERVICE
(Continued)

C. Restoration of Service (Continued)

1. Conditions for Refusal (Continued)

d. Where service has been discontinued for fraudulent use, the utility will not serve an applicant until it has determined that all conditions of fraudulent use or practice has been corrected.

2. Notification to Customers

When an applicant is refused service under the provisions of this rule, the utility will notify the applicant promptly of the reason for the refusal to service and of the right of applicant to appeal the utility's decision to the Public Utilities Commission.

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**



GENERAL INFORMATION

(N)

1. If water supplies are projected to be insufficient to meet normal customer demand, and are beyond the control of the utility, the utility may elect to implement voluntary conservation using the portion of this plan set forth in Section A of this Rule, after notifying the Director of the Commission's Division of Water and Audits of its intent, via a letter in both hard-copy and e-mailed formats.

2. Prior to declaration of mandatory rationing, a utility may request authorization of a Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter.

3. If, in the opinion of the utility, more stringent water measures are required, the utility shall request Commission authorization to implement the staged mandatory conservation and rationing measures set forth in Sections B through E.

4. The utility shall file a Tier 1 advice letter to request activation of a particular stage of Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff.

a. If a Declaration of Mandatory Rationing is made by utility or governing agency, or

b. If the utility is unable to address voluntary conservation levels set by itself, supplier, or governing agency, or

c. If the utility chooses to subsequently activate a different stage

5. When Schedule 14.1 is in effect and the utility determines that water supplies are again sufficient to meet normal demands, and mandatory conservation and rationing measures are no longer necessary, the utility shall seek Commission approval via a Tier 1 advice letter to de-activate the particular stage of mandatory rationing that had been authorized.

(N)

(Continued)

# RULE 14.1
# WATER CONSERVATION AND RATIONING PLAN



GENERAL INFORMATION (Continued) (N)

6. In the event of a water supply shortage requiring a voluntary or mandatory program, the utility shall make available to its customers water conservation kits as required by its version of Rule 20. The utility shall notify all customers of the availability of conservation kits via a bill insert or direct mailers.

A. CONSERVATION - NON-ESSENTIAL OR UNAUTHORIZED WATER USE

No customer shall use utility-supplied water for non-essential or unauthorized uses, including but not limited to:

1. Use of potable water for more than minimal landscaping, as defined in the landscaping regulated of the jurisdiction or as described in Article 10.8 of the California Government Code in connection with new construction;
2. Use through any meter when the company has notified the customer in writing to repair a broken or defective plumbing, sprinkler, watering or irrigation system and the customer has failed to effect such repairs within five business days;
3. Use of potable water which results in flooding or runoff in gutters or streets;
4. Individual private washing of cars with a hose except with the use of a positive action shut-off nozzle. Use of potable water for washing commercial aircraft, cars, buses, boats, trailers, or other commercial vehicles at any time, except at commercial or fleet vehicle or boat washing facilities operated at a fixed location where equipment using water is properly maintained to avoid wasteful use;
5. Use of potable water washing buildings, structures, , driveways, patios, parking lots, tennis courts, or other hard-surfaced areas, except in the cases where health and safety are at risk;
6. Use of potable water to irrigate turf, lawns, gardens, or ornamental landscaping by means other than drip irrigation, or hand watering without quick acting positive action shut-off nozzles, on a specific schedule, for example: 1) before 8:00 a.m. and after 7:00 p.m.; 2) every other day; or 3) selected days of the week; (N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**



GENERAL INFORMATION (Continued)

(N)

7. Use of potable water for watering streets with trucks, except for initial wash-down for construction purposes (if street sweeping is not feasible), or to protect the health and safety of the public;
8. Use of potable water for construction purposes, such as consolidation of backfill, dust control, or other uses unless no other source of water or other method can be used.
9. Use of potable water for construction purposes unless no other source of water or other method can be used;
10. Use of potable water for street cleaning;
11. Operation of commercial car washes without recycling at least 50% of the potable water used per cycle;
12. Use of potable water for watering outside plants, lawn, landscape and turf areas during certain hours if and when specified in Schedule No. 14.1 when the schedule is in effect;
13. Use of potable water for decorative fountains or the filling or topping off of decorative lakes or ponds. Exceptions are made for those decorative fountains, lakes, or ponds which utilize recycled water;
14. Use of potable water for the filling or refilling of swimming pools.
15. Service of water by any restaurant except upon the request of a patron; and
16. Use of potable water to flush hydrants, except where required for public health or safety.

B. STAGED MANDATORY RATIONING OF WATER USAGE

1. Prior to declaration of mandatory rationing, a utility may request authorization of a Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter, with full justification. The utility may not institute Schedule 14.1 until it has been authorized to do so by the Commission.

(N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**



(N)

STAGED MANDATORY RATIONING OF WATER USAGE (Continued)

a. A staged Schedule 14.1 that has been authorized by the Commission shall remain dormant until triggered by specific conditions detailed in the Schedule 14.1 tariff and utility has requested and received authorization for activating a stage by Commission.

b. Notice of the Tier 2 advice letter (example shown in Appendix C) and associated public participation hearing shall be provided to customers under General Order (GO) 96-B rules.

c. Utility shall comply with all requirements of Sections 350-358 of the California Water Code.

d. The Tier 2 advice letter requesting institution of a Schedule 14.1 shall include but not be limited to:

   i. Proposed Schedule 14.1 tariff, which shall include but not be limited to:

      1. Applicability,
      2. Territory applicable to,
      3. A detailed description of each Stage of Rationing,
      4. A detailed description of the Trigger that Activates each Stage of Rationing,
      5. A detailed description of each water use restriction for each stage of rationing.
      6. Water use violation levels, written warning levels, associated fines, and exception procedures,

(N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**

STAGED MANDATORY RATIONING OF WATER USAGE (Continued) Page 5

7. Conditions for installation of a flow restrictor, (N)
8. Charges for removal of flow restrictors, and
9. Special Conditions

ii. Justification for, and documentation and calculations in support of plan, including but not limited to each item in B.1.d.i above.

2. Number of Stages requested by each utility/district may vary, depending on specifics of water shortage event.
3. The utility shall file a Tier 1 advice letter to request activation of a particular stage of Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff.
   a. If a Declaration of Mandatory Rationing is made by utility or governing agency,
   b. If the utility is unable to address voluntary conservation levels set by itself or governing agency, or
   c. If the utility chooses to subsequently activate a different stage.
   d. The Tier 1 advice letter requesting activation of a Schedule 14.1 shall include but not be limited to:
      i. Justification for activating this particular stage of mandatory rationing, as well as period during which this particular stage of mandatory conservation and rationing measures will be in effect.
      ii. When the utility requests activation of a particular Stage, it shall notify its customers as detailed in Section E, below.
4. All monies collected by the utility through water use violation fines shall not be accounted for as income.
5. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission. (N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**

STAGED MANDATORY RATIONING OF WATER USAGE (Continued) Page 6

(N)

a. These monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission.

C. ENFORCEMENT OF STAGED MANDATORY CONSERVATION AND RATIONING

1. The water use restrictions of the conservation program, in Section A of this rule, become mandatory when the authorized Schedule 14.1-Staged Mandatory Rationing Program is triggered, the utility files a Tier 1 advice letter requesting activation of a particular stage, and authorization is received from the Commission.
   a. In the event a customer is observed to be using water for any nonessential or unauthorized use as defined in Section A of this rule, the utility may charge a water use violation fine in accordance with Schedule No. 14.1.

2. The utility may, after one written warning and one non-essential or unauthorized use violation notice , install a flow-restricting device on the service line of any customer observed by utility personnel to be using water for any non-essential or unauthorized use as defined in Section A above.

3. A flow restrictor shall not restrict water delivery by greater than 50% of normal flow. The restricting device may be removed only by the utility, only after a three-day period has elapsed, and only upon payment of the appropriate removal charge as set forth in Schedule No. 14.1.

4. After the removal of the restricting device, if any non-essential or unauthorized use of water shall continue, the utility may install another flow-restricting device. This device shall remain in place until water supply conditions warrant its removal and until the appropriate charge for removal has been paid to the utility.

5. Any tampering with flow restricting device by customer can result in fines or discontinuation of water use at the utility's discretion.

(N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**

ENFORCEMENT OF STAGED MANDATORY CONSERVATION AND RATIONING
(Continued) Page 7
(N)

6. If, despite installation of such flow-restricting device pursuant to the provisions of the previous enforcement conditions, any such non-essential or unauthorized use of water shall continue, then the utility may discontinue water service to such customer. In such latter event, a charge as provided in Rule No. 11 shall be paid to the utility as a condition to restoration of service.

7. All monies collected by the utility through water use violation fines shall not be accounted for as income. All expenses incurred by utility to implement Rule 14.1 and Schedule 14.1 that have not been considered in a General Rate Case or other proceeding, shall be recoverable by utility if determined to be reasonable by Commission. These additional monies shall be accumulated by the utility in a separate memorandum account for disposition as directed or authorized from time to time by the Commission.

8. The charge for removal of a flow-restricting device shall be in accordance with Schedule No. 14.1.

D. APPEAL PROCEDURE

1. Any customer who seeks a variance from any of the provisions of this water conservation and rationing plan shall notify the utility in writing, explaining in detail the reason for such a variation. The utility shall respond to each such request in writing.

2. Any customer not satisfied with the utility's response may file an appeal with the staff of the Commission. The customer and the utility will be notified of the disposition of such appeal by letter from the Executive Director of the Commission.

(N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**

APPEAL PROCEDURE (Continued) Page 8

(N)

3. If the customer disagrees with such disposition, the customer shall have the right to file a formal complaint with the Commission. Except as set forth in this Section, no person shall have any right or claim in law or in equity, against the utility because of, or as a result of, any matter or thing done or threatened to be done pursuant to the provisions of this water conservation and rationing plan.

E. PUBLICITY

1. As stated under Section B.1.b and c, when a utility requests authorization of a Schedule 14.1 – Staged Mandatory Water Conservation and Rationing tariff, via a Tier 2 advice letter, it shall provide notice of the Tier 2 advice letter (example shown in Attachment C) and associated public meeting provided to customers, under General Order (GO) 96-B rules, and shall comply with all requirements of Sections 350-358 of the California Water Code (CWC), including but not limited to the following:
    a. In order to be in compliance with both the GO and CWC, the utility shall provide notice via both newspaper and bill insert/direct mailing.
    b. Utility shall file one notice for each advice letter filed, that includes both notice of the filing of the Tier 2 advice letter as well as the details of the public meeting (date, time, place, etc).
    c. The public meeting shall be held after the utility files the Tier 2 advice letter, and before the Commission authorizes implementation of the tariff.
    d. Utility shall consult with Division of Water and Audits staff prior to filing advice letter, in order to determine details of public meeting.
2. In the event that a Schedule 14.1-Staged Mandatory Rationing Plan is triggered, and an utility requests activation through the filing of a Tier 1 advice letter, the utility shall notify its customers and provide each customer with a copy of Schedule 14.1 by means of bill insert or direct mailing. Notification shall take place prior to imposing any fines associated with this plan.

(N)

(Continued)

**RULE 14.1**
**WATER CONSERVATION AND RATIONING PLAN**

PUBLICITY (Continued) Page 9

(N)

3. During the period that a stage of Schedule 14.1 is activated, the utility shall provide customers with updates in at least every other bill, regarding its water supply status and the results of customers' conservation efforts.

(N)

Rule No. 20

## WATER CONSERVATION (N)

A. Purpose

The purpose of this rule is to ensure that water resources available to the utility are put to a reasonable beneficial use and that the benefits of the utility's water water supply and service extend to the largest number of persons.

B. Waste of Water Discouraged

Refer to Rule 11 B. (3).

C. Use of Water-Saving Devices and Practices

Each customer of the utility is urged to install devices to reduce the quantity of water to flush toilets and to reduce the flow rate of showers.
Each customer is further urged to adopt such other water usage and reusage practices and procedures as are feasible and reasonable.

D. Water-Saving Kits

The utility will make available, without initial cost to the customer, for use in each residence receiving water service from the utility, a water-saving kit containing the following:

(1) A device or devices for reducing toilet flush water requirements;

(2) A device or devices for reducing shower flow rates;

(3) A dye tablet or tablets for determining if a toilet tank leaks;

(4) Other devices from time to time approved by the utility;

(5) Installation and other instructions and information pertinent to conservation of water. (N)

# Appendix E

DMM Supporting Documents

Schedule No. R3-1-R
Region 3 Customer Service Areas
RESIDENTIAL METERED SERVICE

APPLICABILITY

Applicable to all residential metered water services provided to single-family residential customers.

TERRITORY

Barstow and vicinity, San Bernardino County, the City of Claremont, portions of Montclair, Pomona, Upland, within the area north of Thompson Creek and the Padua Hills Service Area, and adjacent unincorporated territory in Los Angeles and San Bernardino Counties, the City of Calipatria and community of Niland, and the adjacent territory in Imperial County, the vicinity of Victorville and Lucerne, San Bernardino County, all or portions of the Cities of Cypress, La Palma, Los Alamitos, Placentia, Seal Beach, Stanton, Yorba-Linda and vicinity, Cowan Heights, Orange County; San Dimas, Charter Oak and vicinity, Los Angeles County; and portions of the Cities of Arcadia, El Monte, Irwindale, Monrovia, Monterey Park, Rosemead, San Gabriel, Temple City and vicinity, Los Angeles County.

RATES

| | |
|---|---|
| Quantity Rate: | |
| First 1,300 cu. Ft., per 100 cu. ft. | $ 2.673 |
| Next 800 cu. Ft., per 100 cu. ft. | $ 3.074 |
| Over 2,100 cu. Ft., per 100 cu. ft. | $ 3.535 |

| Service Charges: | Per Meter Per Month |
|---|---|
| For 5/8 x 3/4-inch meter | $ 15.15 |
| For 3/4-inch meter | 22.70 |
| For 1-inch meter | 37.80 |
| For 1 1/2 inch meter | 75.65 |
| For 2-inch meter | 121.00 |
| For 3-inch meter | 227.00 |
| For 4-inch meter | 378.00 |
| For 6-inch meter | 756.00 |
| For 8-inch meter | 1,210.00 |
| For 10-inch meter | 1,739.00 |
| Sprinkler System Services | $16.65 |

The Service Charge is a readiness-to-serve charge applicable to all metered service and to which is added the charge for water used computed at the Quantity Rate.

**SPECIAL CONDITIONS**

1. All bills are subject to the reimbursement fee set forth on Schedule No. UF.
2. Residential customers are defined as all single family customers with one dwelling unit that are individually metered.
3. As authorized by the California Public Utilities Commission, an amount of $0.156 per Ccf for Tier 1, $0.180 per Ccf for Tier 2 and $0.207 per Ccf for Tier 3 is to be added to the Quantity Rate for a period of 24 months, beginning on the effective date of Advice Letter 1381-W, which is March 21, 2010. This surcharge will apply to all customers covered by the WRAM in 2009 which includes metered customers in Barstow, Claremont, San Gabriel, Los Alamitos, Placentia, San Dimas and Calipatria customers who were billed at the metered rate as of December 31, 2009
4. As authorized by the California Public Utilities Commission, an amount of $0.0735 per Ccf for Tier 1, $0.0845 per Ccf for Tier 2 and $0.0972 per Ccf for Tier 3 is to be added to the Quantity Rate for a period of 12 months, beginning on the effective date of Advice Letter 1401-W, which is June 7, 2010. This surcharge will recover the undercollection in the CARW Balancing Account, as of December 31, 2009.
5. Pursuant to Decision 10-11-035, a surcharge of $0.0035 per Ccf will be applied to all metered customers bills excluding customers that are receiving the CARW credit, beginning on the effective date of Advice Letter 1417-W. This surcharge will offset the CARW credits and CARW administrative program costs recorded in the CARW Balancing Account.
6. As authorized by the California Public Utilities Commission in D. 10-11-035, an amount of $0.20214 per Ccf is to be added to the Quantity Rate for a period of 24 months, beginning on January 1, 2011. This surcharge recovers the difference between the interim rates and final rates for the period of January 1, 2010 through December 1, 2010.
7. As authorized by the California Public Utilities Commission, an amount of $0.0053 per Ccf for Tier 1 and $0.0061 per Ccf for Tier 2 is to be added to the Quantity Rate for a period of 12 months, beginning on the effective date of Advice Letter 1408-WA. This surcharge will recover the undercollection in the Orange County Annexation Memorandum Account, as of March 31, 2010. (N) (N) (N) (N)

Schedule No. R3-1-NR
Region 3 Customer Service Areas
NON-RESIDENTIAL METERED SERVICE

APPLICABILITY

Applicable to all metered water service except those covered under R3-1-R.

TERRITORY

Barstow and vicinity, San Bernardino County, the City of Claremont, portions of Montclair, Pomona, Upland, within the area north of Thompson Creek and the Padua Hills Service Area, and adjacent unincorporated territory in Los Angeles and San Bernardino Counties, the City of Calipatria and community of Niland, and the adjacent territory in Imperial County, the vicinity of Victorville and Lucerne, San Bernardino County, all or portions of the Cities of Cypress, La Palma, Los Alamitos, Placentia, Seal Beach, Stanton, Yorba-Linda and vicinity, Cowan Heights, Orange County; San Dimas, Charter Oak and vicinity, Los Angeles County; and portions of the Cities of Arcadia, El Monte, Irwindale, Monrovia, Monterey Park, Rosemead, San Gabriel, Temple City and vicinity, Los Angeles County.

RATES

Quantity Rate:

| | |
|---|---|
| For all water delivered, per 100 cu. ft..... | $ 2.489 |

| Service Charges: | Per Meter Per Month |
|---|---|
| For 5/8 x 3/4-inch meter..... | $ 21.45 |
| For 3/4-inch meter..... | 32.15 |
| For 1-inch meter..... | 53.55 |
| For 1 1/2 inch meter..... | 107.00 |
| For 2-inch meter..... | 171.00 |
| For 3-inch meter..... | 321.00 |
| For 4-inch meter..... | 536.00 |
| For 6-inch meter..... | 1,071.00 |
| For 8-inch meter..... | 1,714.00 |
| For 10-inch meter..... | 2,464.00 |

The Service Charge is a readiness-to-serve charge applicable to all metered service and to which is added the charge for water used computed at the Quantity Rate.

**SPECIAL CONDITIONS**

1. All bills are subject to the reimbursement fee set forth on Schedule No. UF.
2. As authorized by the California Public Utilities Commission, an amount of $0.154 per Ccf is to be added to the Quantity Rate for a period of 24 months, beginning on the effective date of Advice Letter 1381-W, which is March 21, 2010. This surcharge will apply to all customers covered by the WRAM in 2009 which includes metered customers in Barstow, Claremont, San Gabriel, Los Alamitos, Placentia, San Dimas and Calipatria customers who were billed at the metered rate as of December 31, 2009.
3. As authorized by the California Public Utilities Commission, an amount of $0.06879 per Ccf is to be added to the Quantity Rate for a period of 12 months, beginning on the effective date of Advice Letter 1401-W, which is June 7, 2010. This surcharge will recover the undercollection in the CARW Balancing Account, as of December 31, 2009.
4. Pursuant to Decision 10-11-035, a surcharge of $0.0035 per Ccf will be applied to all metered customers bills excluding customers that are receiving the CARW credit, beginning on the effective date of Advice Letter 1417-W. This surcharge will offset the CARW credits and CARW administrative program costs recorded in the CARW Balancing Account.
5. As authorized by the California Public Utilities Commission in D. 10-11-035, an amount of $0.20214 per Ccf is to be added to the Quantity Rate for a period of 24 months, beginning on January 1, 2011. This surcharge recovers the difference between the interim rates and final rates for the period of January 1, 2010 through December 1, 2010.
6. As authorized by the California Public Utilities Commission, an amount of $0.0047 per Ccf is to be added to the Quantity Rate for a period of 12 months, beginning on the effective date of Advice Letter 1408-WA. This surcharge will recover the undercollection in the Orange County Annexation Memorandum Account, as of March 31, 2010. (N) (N) (N)

# AWWA WLCC Water Audit Software: Reporting Worksheet

 WASv3.0

Back to Instructions

? Click to access definition

**Water Audit Report for:** Golden State Water Company - West Orange System
**Reporting Year:** 2008

Please enter data in the white cells below. Where possible, metered values should be used; if metered values are unavailable please estimate a value. Indicate this by selecting a choice from the gray box to the left, where M = measured (or accurately known value) and E = estimated.

**All volumes to be entered as: ACRE-FEET PER YEAR**

## WATER SUPPLIED

| | | | | |
|---|---|---|---|---|
| Volume from own sources: | M | 13,912.000 | acre-ft/yr | |
| Master meter error adjustment: | E | 0.000 | under-registered | acre-ft/yr |
| Water imported: | M | 4,339.000 | acre-ft/yr | |
| Water exported: | | 0.000 | acre-ft/yr | |
| **WATER SUPPLIED:** | | 18,251.000 | acre-ft/yr | |

## AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

| | | | | Pcnt: | Value: |
|---|---|---|---|---|---|
| Billed metered: | M | 17,610.000 | acre-ft/yr | | |
| Billed unmetered: | | 0.000 | acre-ft/yr | | |
| Unbilled metered: | M | 171.570 | acre-ft/yr | | |
| Unbilled unmetered: | | 228.138 | acre-ft/yr | 1.25% | |
| **AUTHORIZED CONSUMPTION:** | | 18,009.708 | acre-ft/yr | | |

Use buttons to select percentage **OR** value

| | | | | Pcnt: | Value: |
|---|---|---|---|---|---|
| **WATER LOSSES (Water Supplied - Authorized Consumption)** | | 241.293 | acre-ft/yr | | |
| **Apparent Losses** | | | | | |
| Unauthorized consumption: | | 45.628 | acre-ft/yr | 0.25% | |
| Customer metering inaccuracies: | | 362.889 | acre-ft/yr | 2.00% | |
| Systematic data handling errors: | | 0.000 | acre-ft/yr | | |
| Apparent Losses: | | 408.517 | acre-ft/yr | | |

**Check above input values; APPARENT LOSSES should be less than WATER LOSSES**

**Real Losses**

| | | | |
|---|---|---|---|
| Real Losses = (Water Losses - Apparent Losses): | | -167.224 | acre-ft/yr |
| **WATER LOSSES:** | | 241.293 | acre-ft/yr |

## NON-REVENUE WATER

| | | | |
|---|---|---|---|
| **NON-REVENUE WATER:** | | 641.000 | acre-ft/yr |

## SYSTEM DATA

| | | | | |
|---|---|---|---|---|
| Length of mains: | M | 244.0 | miles | |
| Number of active AND inactive service connections: | | 28,043 | | |
| Connection density: | | 115 | conn./mile main | |
| Average length of customer service line: | E | 25.0 | ft | (pipe length between curbstop and customer meter or property boundary) |
| Average operating pressure: | M | 72.8 | psi | |

## COST DATA

| | | | |
|---|---|---|---|
| Total annual cost of operating water system: | $14,712,825 | $/Year | |
| Customer retail unit cost (applied to Apparent Losses): | $30.20 | $/100 cubic feet (ccf) | |
| Variable production cost (applied to Real Losses): | $568.00 | $/acre-ft/yr | |

**DATA REVIEW - Please review the following information and make changes above if necessary:**

- Input values should be indicated as either measured or estimated. You have entered:
  - **6 as measured values**
  - **2 as estimated values**
  - **2 as default values**
  - **8 without specifying measured, estimated or default**
- Water Supplied Data: No problems identified
- Unbilled unmetered consumption: No problems identified
- Unauthorized consumption: No problems identified
- It is important to accurately measure the master meter - you have entered the measurement type as: measured
- Cost Data: No problems identified

## PERFORMANCE INDICATORS

**Financial Indicators**

| | |
|---|---|
| Non-revenue water as percent by volume: | 3.5% |
| Non-revenue water as percent by cost: | 37.4% |
| Annual cost of Apparent Losses: | $5,374,086 |
| Annual cost of Real Losses: | -$94,983 |

**Operational Efficiency Indicators**

| | | |
|---|---|---|
| Apparent Losses per service connection per day: | 13.01 | gallons/connection/day |
| Real Losses per service connection per day*: | -5.32 | gallons/connection/day |
| Real Losses per length of main per day*: | N/A | |
| Real Losses per service connection per day per psi pressure: | -0.07 | gallons/connection/day/psi |
| ? Unavoidable Annual Real Losses (UARL): | 173.31 | million gallons/year |
| ? Infrastructure Leakage Index (ILI) [Real Losses/UARL]: | -0.31 | |

* only the most applicable of these two indicators will be calculated

# Appendix F

(Not Applicable; Appendix Intentionally **Not** Included)

# Appendix G

Summary of Population Based on Census Data

**Appendix G-1: Census Tracts within the West Orange County System**

| County | Subregion | City | Census Tract | Percentage of Tract in System |
|---|---|---|---|---|
| Orange | Orange County | Stanton city | 87801 | 100% |
| Orange | Orange County | Unincorporated | 87801 | 100% |
| Orange | Orange County | Stanton city | 87802 | 100% |
| Orange | Orange County | Stanton city | 87803 | 100% |
| Orange | Orange County | Anaheim city | 87805 | 60% |
| Orange | Orange County | Stanton city | 87805 | 100% |
| Orange | Orange County | Unincorporated | 87805 | 100% |
| Orange | Orange County | Garden Grove city | 87806 | 100% |
| Orange | Orange County | Stanton city | 87806 | 30% |
| Orange | Orange County | Stanton city | 87901 | 100% |
| Orange | Orange County | Garden Grove city | 87902 | 100% |
| Orange | Orange County | Stanton city | 87902 | 90% |
| Orange | Orange County | Garden Grove city | 88001 | 5% |
| Orange | Orange County | Stanton city | 88101 | 100% |
| Orange | Orange County | Garden Grove city | 88104 | 65% |
| Orange | Orange County | Stanton city | 88104 | 100% |
| Orange | Orange County | Stanton city | 88105 | 100% |
| Orange | Orange County | Stanton city | 88106 | 100% |
| Orange | Orange County | Cypress city | 110001 | 100% |
| Orange | Orange County | Garden Grove city | 110005 | 2% |
| Orange | Orange County | Unincorporated | 110006 | 100% |
| Orange | Orange County | Unincorporated | 110007 | 100% |
| Orange | Orange County | Seal Beach city | 110008 | 100% |
| Orange | Orange County | Unincorporated | 110008 | 100% |
| Orange | Orange County | Cypress city | 110010 | 100% |
| Orange | Orange County | Cypress city | 110011 | 100% |
| Orange | Orange County | Los Alamitos city | 110012 | 100% |
| Orange | Orange County | Seal Beach city | 110012 | 1% |
| Orange | Orange County | Los Alamitos city | 110014 | 100% |
| Orange | Orange County | Cypress city | 110015 | 100% |
| Orange | Orange County | Los Alamitos city | 110015 | 100% |
| Orange | Orange County | Buena Park city | 110102 | 100% |
| Orange | Orange County | Cypress city | 110102 | 100% |
| Orange | Orange County | La Palma city | 110102 | 15% |
| Orange | Orange County | Cypress city | 110104 | 100% |
| Orange | Orange County | Cypress city | 110106 | 100% |
| Orange | Orange County | Los Alamitos city | 110106 | 100% |
| Orange | Orange County | Los Alamitos city | 110108 | 100% |
| Orange | Orange County | Cypress city | 110109 | 100% |
| Orange | Orange County | Buena Park city | 110110 | 20% |
| Orange | Orange County | Cypress city | 110110 | 100% |
| Orange | Orange County | Cypress city | 110111 | 100% |
| Orange | Orange County | La Palma city | 110111 | 100% |
| Orange | Orange County | Cypress city | 110113 | 100% |
| Orange | Orange County | Los Alamitos city | 110113 | 100% |
| Orange | Orange County | Stanton city | 110113 | 100% |
| Orange | Orange County | Cypress city | 110114 | 100% |
| Orange | Orange County | Cypress city | 110117 | 100% |
| Orange | Orange County | Los Alamitos city | 110117 | 100% |
| Orange | Orange County | Cypress city | 110118 | 100% |
| Orange | Orange County | Buena Park city | 110202 | 10% |
| Orange | Orange County | Cypress city | 110202 | 50% |
| Orange | Orange County | Buena Park city | 110203 | 5% |
| Orange | Orange County | Buena Park city | 110304 | 8% |
| Orange | Orange County | La Palma city | 110304 | 15% |

**Table G-2: Population, Household and Employment Projections for West Orange County System**

| Census Tract | County | Subregion | City | Population 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | Percentage of Tract in System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 87801 | Orange | Orange County | Stanton city | 3,906 | 4,046 | 4,216 | 4,402 | 4,540 | 4,634 | 4,695 | 100% |
| 87801 | Orange | Orange County | Unincorporated | 43 | 45 | 45 | 46 | 46 | 46 | 46 | 100% |
| 87802 | Orange | Orange County | Stanton city | 5,707 | 5,782 | 5,996 | 6,186 | 6,297 | 6,364 | 6,388 | 100% |
| 87803 | Orange | Orange County | Stanton city | 4,933 | 5,232 | 5,531 | 5,870 | 6,122 | 6,302 | 6,400 | 100% |
| 87805 | Orange | Orange County | Anaheim city | 2,253 | 2,369 | 2,414 | 2,441 | 2,451 | 2,918 | 2,932 | 60% |
| 87805 | Orange | Orange County | Stanton city | 4,423 | 4,488 | 4,586 | 4,717 | 4,798 | 4,883 | 4,934 | 100% |
| 87805 | Orange | Orange County | Unincorporated | 347 | 351 | 352 | 356 | 358 | 360 | 360 | 100% |
| 87806 | Orange | Orange County | Garden Grove city | 154 | 161 | 164 | 177 | 178 | 179 | 179 | 100% |
| 87806 | Orange | Orange County | Stanton city | 2,370 | 2,408 | 2,456 | 2,528 | 2,576 | 2,625 | 2,659 | 30% |
| 87901 | Orange | Orange County | Stanton city | 3,449 | 3,536 | 3,745 | 3,980 | 4,267 | 4,457 | 4,494 | 100% |
| 87902 | Orange | Orange County | Garden Grove city | 127 | 133 | 135 | 136 | 137 | 138 | 138 | 100% |
| 87902 | Orange | Orange County | Stanton city | 3,900 | 4,111 | 4,355 | 4,594 | 4,792 | 4,901 | 4,945 | 90% |
| 88001 | Orange | Orange County | Garden Grove city | 4,856 | 5,104 | 5,201 | 5,262 | 5,285 | 5,327 | 5,348 | 5% |
| 88101 | Orange | Orange County | Stanton city | 2,221 | 2,282 | 2,358 | 2,418 | 2,454 | 2,484 | 2,500 | 100% |
| 88104 | Orange | Orange County | Garden Grove city | 778 | 817 | 833 | 842 | 846 | 850 | 850 | 65% |
| 88104 | Orange | Orange County | Stanton city | 3,956 | 4,002 | 4,229 | 4,428 | 4,533 | 4,590 | 4,615 | 100% |
| 88105 | Orange | Orange County | Stanton city | 79 | 80 | 83 | 83 | 84 | 85 | 85 | 100% |
| 88106 | Orange | Orange County | Stanton city | 3,248 | 3,362 | 3,560 | 3,797 | 3,871 | 3,920 | 3,943 | 100% |
| 110001 | Orange | Orange County | Cypress city | 1,035 | 1,088 | 1,109 | 1,122 | 1,129 | 1,135 | 1,135 | 100% |
| 110005 | Orange | Orange County | Garden Grove city | 3,280 | 3,451 | 3,518 | 3,565 | 3,581 | 3,621 | 3,628 | 2% |
| 110006 | Orange | Orange County | Unincorporated | 2,816 | 2,969 | 2,977 | 3,011 | 3,026 | 3,044 | 3,044 | 100% |
| 110007 | Orange | Orange County | Unincorporated | 3,854 | 3,854 | 3,853 | 3,900 | 3,923 | 3,942 | 3,944 | 100% |
| 110008 | Orange | Orange County | Seal Beach city | 827 | 867 | 884 | 897 | 901 | 905 | 905 | 100% |
| 110008 | Orange | Orange County | Unincorporated | 3,436 | 3,450 | 3,454 | 3,493 | 3,511 | 3,531 | 3,531 | 100% |
| 110010 | Orange | Orange County | Cypress city | 2,853 | 2,996 | 3,053 | 3,090 | 3,104 | 3,120 | 3,120 | 100% |
| 110011 | Orange | Orange County | Cypress city | 2,823 | 2,966 | 3,022 | 3,060 | 3,073 | 3,089 | 3,089 | 100% |
| 110012 | Orange | Orange County | Los Alamitos city | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 100% |
| 110012 | Orange | Orange County | Seal Beach city | 5,291 | 5,566 | 5,671 | 5,737 | 5,759 | 5,804 | 5,819 | 1% |
| 110014 | Orange | Orange County | Los Alamitos city | 4,903 | 5,206 | 5,339 | 5,439 | 5,494 | 5,556 | 5,589 | 100% |
| 110015 | Orange | Orange County | Cypress city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110015 | Orange | Orange County | Los Alamitos city | 3,639 | 3,815 | 3,883 | 3,929 | 3,945 | 3,963 | 3,983 | 100% |
| 110102 | Orange | Orange County | Buena Park city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110102 | Orange | Orange County | Cypress city | 1,192 | 1,253 | 1,291 | 1,334 | 1,359 | 1,381 | 1,395 | 100% |
| 110102 | Orange | Orange County | La Palma city | 4,587 | 4,877 | 4,974 | 5,032 | 5,053 | 5,078 | 5,109 | 15% |
| 110104 | Orange | Orange County | Cypress city | 6,095 | 6,357 | 6,518 | 6,731 | 6,802 | 6,884 | 6,929 | 100% |
| 110106 | Orange | Orange County | Cypress city | 3,701 | 3,890 | 3,962 | 4,010 | 4,033 | 4,052 | 4,052 | 100% |
| 110106 | Orange | Orange County | Los Alamitos city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110108 | Orange | Orange County | Los Alamitos city | 2,859 | 3,011 | 3,071 | 3,108 | 3,139 | 3,170 | 3,192 | 100% |
| 110109 | Orange | Orange County | Cypress city | 5,101 | 5,457 | 5,559 | 5,645 | 5,670 | 5,696 | 5,697 | 100% |
| 110110 | Orange | Orange County | Buena Park city | 1,327 | 1,387 | 1,414 | 1,430 | 1,437 | 1,444 | 1,444 | 20% |
| 110110 | Orange | Orange County | Cypress city | 4,590 | 4,736 | 5,087 | 5,495 | 5,632 | 5,722 | 5,779 | 100% |
| 110111 | Orange | Orange County | Cypress city | 5,553 | 5,850 | 6,040 | 6,318 | 6,478 | 6,627 | 6,706 | 100% |
| 110111 | Orange | Orange County | La Palma city | 121 | 128 | 129 | 130 | 131 | 132 | 137 | 100% |
| 110113 | Orange | Orange County | Cypress city | 1,823 | 1,918 | 1,954 | 2,009 | 2,022 | 2,032 | 2,032 | 100% |
| 110113 | Orange | Orange County | Los Alamitos city | 365 | 373 | 380 | 385 | 386 | 387 | 387 | 100% |
| 110113 | Orange | Orange County | Stanton city | 314 | 322 | 325 | 334 | 339 | 344 | 347 | 100% |
| 110114 | Orange | Orange County | Cypress city | 5,004 | 5,259 | 5,359 | 5,426 | 5,450 | 5,478 | 5,479 | 100% |
| 110117 | Orange | Orange County | Cypress city | 5,739 | 6,006 | 6,068 | 6,152 | 6,193 | 6,239 | 6,253 | 100% |
| 110117 | Orange | Orange County | Los Alamitos city | 117 | 123 | 124 | 125 | 126 | 127 | 127 | 100% |
| 110118 | Orange | Orange County | Cypress city | 2,858 | 3,007 | 3,062 | 3,104 | 3,119 | 3,134 | 3,134 | 100% |
| 110202 | Orange | Orange County | Buena Park city | 3,105 | 3,295 | 3,327 | 3,348 | 3,357 | 3,367 | 3,368 | 10% |
| 110202 | Orange | Orange County | Cypress city | 304 | 319 | 326 | 331 | 332 | 346 | 359 | 50% |
| 110203 | Orange | Orange County | Buena Park city | 2,942 | 3,096 | 3,155 | 3,195 | 3,210 | 3,226 | 3,226 | 5% |
| 110304 | Orange | Orange County | Buena Park city | 4,203 | 4,444 | 4,530 | 4,584 | 4,605 | 4,631 | 4,631 | 8% |
| 110304 | Orange | Orange County | La Palma city | 780 | 818 | 832 | 842 | 846 | 850 | 860 | 15% |
| Total Population Based on SCAG | | | | 109,975 | 114,509 | 117,841 | 121,403 | 123,404 | 125,248 | 125,936 | |
| SCAG Growth Rate | | | | | | 3% | 3% | 2% | 1% | 1% | |

**Table G-2: Population, Household and Employment Projections for West Orange County System**

| Census Tract | County | Subregion | City | Households 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | Percentage of Tract in System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 87801 | Orange | Orange County | Stanton city | 1,187 | 1,209 | 1,242 | 1,284 | 1,318 | 1,340 | 1,360 | 100% |
| 87801 | Orange | Orange County | Unincorporated | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 100% |
| 87802 | Orange | Orange County | Stanton city | 1,730 | 1,739 | 1,784 | 1,820 | 1,846 | 1,857 | 1,863 | 100% |
| 87803 | Orange | Orange County | Stanton city | 943 | 1,002 | 1,080 | 1,138 | 1,182 | 1,206 | 1,227 | 100% |
| 87805 | Orange | Orange County | Anaheim city | 739 | 739 | 739 | 740 | 741 | 882 | 882 | 60% |
| 87805 | Orange | Orange County | Stanton city | 1,025 | 1,034 | 1,068 | 1,088 | 1,104 | 1,120 | 1,134 | 100% |
| 87805 | Orange | Orange County | Unincorporated | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 100% |
| 87806 | Orange | Orange County | Garden Grove city | 30 | 30 | 30 | 32 | 32 | 32 | 32 | 100% |
| 87806 | Orange | Orange County | Stanton city | 612 | 620 | 637 | 649 | 657 | 669 | 681 | 30% |
| 87901 | Orange | Orange County | Stanton city | 1,045 | 1,045 | 1,104 | 1,171 | 1,239 | 1,289 | 1,301 | 100% |
| 87902 | Orange | Orange County | Garden Grove city | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 100% |
| 87902 | Orange | Orange County | Stanton city | 836 | 882 | 944 | 989 | 1,032 | 1,052 | 1,063 | 90% |
| 88001 | Orange | Orange County | Garden Grove city | 1,249 | 1,249 | 1,251 | 1,251 | 1,251 | 1,258 | 1,263 | 5% |
| 88101 | Orange | Orange County | Stanton city | 692 | 701 | 717 | 728 | 735 | 741 | 746 | 100% |
| 88104 | Orange | Orange County | Garden Grove city | 274 | 274 | 274 | 275 | 275 | 275 | 275 | 65% |
| 88104 | Orange | Orange County | Stanton city | 1,346 | 1,352 | 1,390 | 1,441 | 1,472 | 1,483 | 1,489 | 100% |
| 88105 | Orange | Orange County | Stanton city | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 100% |
| 88106 | Orange | Orange County | Stanton city | 1,281 | 1,301 | 1,356 | 1,427 | 1,452 | 1,463 | 1,469 | 100% |
| 110001 | Orange | Orange County | Cypress city | 336 | 336 | 336 | 336 | 336 | 336 | 336 | 100% |
| 110005 | Orange | Orange County | Garden Grove city | 1,154 | 1,154 | 1,154 | 1,154 | 1,154 | 1,164 | 1,164 | 2% |
| 110006 | Orange | Orange County | Unincorporated | 1,090 | 1,090 | 1,090 | 1,090 | 1,090 | 1,090 | 1,090 | 100% |
| 110007 | Orange | Orange County | Unincorporated | 1,358 | 1,357 | 1,358 | 1,360 | 1,361 | 1,362 | 1,363 | 100% |
| 110008 | Orange | Orange County | Seal Beach city | 432 | 431 | 433 | 434 | 434 | 435 | 435 | 100% |
| 110008 | Orange | Orange County | Unincorporated | 1,270 | 1,269 | 1,270 | 1,271 | 1,272 | 1,273 | 1,274 | 100% |
| 110010 | Orange | Orange County | Cypress city | 844 | 844 | 844 | 844 | 844 | 844 | 844 | 100% |
| 110011 | Orange | Orange County | Cypress city | 1,095 | 1,094 | 1,095 | 1,096 | 1,096 | 1,098 | 1,098 | 100% |
| 110012 | Orange | Orange County | Los Alamitos city | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 100% |
| 110012 | Orange | Orange County | Seal Beach city | 1,823 | 1,823 | 1,823 | 1,823 | 1,823 | 1,828 | 1,833 | 1% |
| 110014 | Orange | Orange County | Los Alamitos city | 1,858 | 1,873 | 1,887 | 1,900 | 1,912 | 1,926 | 1,940 | 100% |
| 110015 | Orange | Orange County | Cypress city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110015 | Orange | Orange County | Los Alamitos city | 1,211 | 1,215 | 1,217 | 1,219 | 1,219 | 1,219 | 1,230 | 100% |
| 110102 | Orange | Orange County | Buena Park city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110102 | Orange | Orange County | Cypress city | 426 | 438 | 450 | 462 | 468 | 473 | 478 | 100% |
| 110102 | Orange | Orange County | La Palma city | 1,425 | 1,441 | 1,441 | 1,443 | 1,443 | 1,444 | 1,453 | 15% |
| 110104 | Orange | Orange County | Cypress city | 2,084 | 2,126 | 2,182 | 2,230 | 2,247 | 2,264 | 2,279 | 100% |
| 110106 | Orange | Orange County | Cypress city | 1,230 | 1,229 | 1,230 | 1,231 | 1,232 | 1,233 | 1,234 | 100% |
| 110106 | Orange | Orange County | Los Alamitos city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110108 | Orange | Orange County | Los Alamitos city | 998 | 1,006 | 1,008 | 1,008 | 1,014 | 1,019 | 1,030 | 100% |
| 110109 | Orange | Orange County | Cypress city | 1,872 | 1,910 | 1,916 | 1,922 | 1,922 | 1,923 | 1,924 | 100% |
| 110110 | Orange | Orange County | Buena Park city | 416 | 416 | 417 | 417 | 417 | 417 | 419 | 20% |
| 110110 | Orange | Orange County | Cypress city | 1,418 | 1,462 | 1,590 | 1,711 | 1,737 | 1,757 | 1,777 | 100% |
| 110111 | Orange | Orange County | Cypress city | 1,810 | 1,883 | 1,957 | 2,030 | 2,076 | 2,120 | 2,146 | 100% |
| 110111 | Orange | Orange County | La Palma city | 54 | 54 | 54 | 54 | 54 | 54 | 56 | 100% |
| 110113 | Orange | Orange County | Cypress city | 549 | 549 | 550 | 560 | 560 | 561 | 561 | 100% |
| 110113 | Orange | Orange County | Los Alamitos city | 177 | 177 | 177 | 177 | 177 | 177 | 178 | 100% |
| 110113 | Orange | Orange County | Stanton city | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 100% |
| 110114 | Orange | Orange County | Cypress city | 1,506 | 1,503 | 1,506 | 1,506 | 1,509 | 1,509 | 1,511 | 100% |
| 110117 | Orange | Orange County | Cypress city | 2,054 | 2,059 | 2,066 | 2,072 | 2,079 | 2,086 | 2,091 | 100% |
| 110117 | Orange | Orange County | Los Alamitos city | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 100% |
| 110118 | Orange | Orange County | Cypress city | 760 | 760 | 760 | 760 | 760 | 760 | 760 | 100% |
| 110202 | Orange | Orange County | Buena Park city | 832 | 852 | 852 | 853 | 853 | 853 | 853 | 10% |
| 110202 | Orange | Orange County | Cypress city | 132 | 132 | 132 | 132 | 132 | 138 | 143 | 50% |
| 110203 | Orange | Orange County | Buena Park city | 824 | 824 | 824 | 825 | 826 | 827 | 827 | 5% |
| 110304 | Orange | Orange County | Buena Park city | 1,139 | 1,146 | 1,146 | 1,147 | 1,147 | 1,148 | 1,149 | 8% |
| 110304 | Orange | Orange County | La Palma city | 243 | 243 | 243 | 243 | 243 | 243 | 246 | 15% |
| Total Population Based on SCAG | | | | 35,435 | 35,843 | 36,558 | 37,248 | 37,661 | 38,037 | 38,258 | |
| SCAG Growth Rate | | | | | | 2% | 2% | 1% | 1% | 1% | |

**Table G-2: Population, Household and Employment Projections for West Orange County System**

| Census Tract | County | Subregion | City | Employment 2005 | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | Percentage of Tract in System |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 87801 | Orange | Orange County | Stanton city | 286 | 337 | 348 | 366 | 368 | 372 | 373 | 100% |
| 87801 | Orange | Orange County | Unincorporated | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 100% |
| 87802 | Orange | Orange County | Stanton city | 535 | 630 | 650 | 687 | 694 | 700 | 701 | 100% |
| 87803 | Orange | Orange County | Stanton city | 2,081 | 2,424 | 2,490 | 2,604 | 2,636 | 2,663 | 2,665 | 100% |
| 87805 | Orange | Orange County | Anaheim city | 129 | 129 | 129 | 129 | 129 | 129 | 129 | 60% |
| 87805 | Orange | Orange County | Stanton city | 1,119 | 1,181 | 1,194 | 1,217 | 1,221 | 1,227 | 1,228 | 100% |
| 87805 | Orange | Orange County | Unincorporated | 42 | 48 | 50 | 51 | 51 | 51 | 51 | 100% |
| 87806 | Orange | Orange County | Garden Grove city | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 100% |
| 87806 | Orange | Orange County | Stanton city | 273 | 313 | 324 | 339 | 342 | 346 | 346 | 30% |
| 87901 | Orange | Orange County | Stanton city | 1,038 | 842 | 888 | 969 | 984 | 997 | 1,000 | 100% |
| 87902 | Orange | Orange County | Garden Grove city | 7 | 7 | 7 | 7 | 7 | 9 | 10 | 100% |
| 87902 | Orange | Orange County | Stanton city | 359 | 414 | 426 | 446 | 450 | 455 | 458 | 90% |
| 88001 | Orange | Orange County | Garden Grove city | 339 | 367 | 382 | 394 | 396 | 400 | 400 | 5% |
| 88101 | Orange | Orange County | Stanton city | 1,801 | 1,866 | 1,894 | 1,924 | 1,929 | 1,944 | 1,945 | 100% |
| 88104 | Orange | Orange County | Garden Grove city | 460 | 467 | 471 | 476 | 477 | 481 | 482 | 65% |
| 88104 | Orange | Orange County | Stanton city | 1,356 | 1,440 | 1,458 | 1,478 | 1,485 | 1,498 | 1,502 | 100% |
| 88105 | Orange | Orange County | Stanton city | 20 | 20 | 21 | 21 | 21 | 21 | 21 | 100% |
| 88106 | Orange | Orange County | Stanton city | 1,234 | 1,263 | 1,291 | 1,322 | 1,328 | 1,340 | 1,346 | 100% |
| 110001 | Orange | Orange County | Cypress city | 90 | 98 | 99 | 101 | 101 | 102 | 102 | 100% |
| 110005 | Orange | Orange County | Garden Grove city | 535 | 541 | 543 | 547 | 547 | 550 | 551 | 2% |
| 110006 | Orange | Orange County | Unincorporated | 458 | 477 | 480 | 481 | 481 | 485 | 485 | 100% |
| 110007 | Orange | Orange County | Unincorporated | 412 | 428 | 431 | 431 | 431 | 433 | 433 | 100% |
| 110008 | Orange | Orange County | Seal Beach city | 1,459 | 1,459 | 1,459 | 1,459 | 1,459 | 1,459 | 1,459 | 100% |
| 110008 | Orange | Orange County | Unincorporated | 393 | 409 | 412 | 413 | 413 | 414 | 414 | 100% |
| 110010 | Orange | Orange County | Cypress city | 217 | 230 | 235 | 236 | 236 | 239 | 239 | 100% |
| 110011 | Orange | Orange County | Cypress city | 4,325 | 4,659 | 5,080 | 5,370 | 5,430 | 5,490 | 5,490 | 100% |
| 110012 | Orange | Orange County | Los Alamitos city | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 100% |
| 110012 | Orange | Orange County | Seal Beach city | 1,002 | 1,002 | 1,002 | 1,002 | 1,002 | 1,002 | 1,002 | 1% |
| 110014 | Orange | Orange County | Los Alamitos city | 3,623 | 3,699 | 3,703 | 3,741 | 3,748 | 3,780 | 3,784 | 100% |
| 110015 | Orange | Orange County | Cypress city | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 100% |
| 110015 | Orange | Orange County | Los Alamitos city | 2,965 | 3,047 | 3,051 | 3,124 | 3,137 | 3,161 | 3,163 | 100% |
| 110102 | Orange | Orange County | Buena Park city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110102 | Orange | Orange County | Cypress city | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 100% |
| 110102 | Orange | Orange County | La Palma city | 669 | 741 | 774 | 799 | 805 | 815 | 817 | 15% |
| 110104 | Orange | Orange County | Cypress city | 2,528 | 3,388 | 3,919 | 4,300 | 4,362 | 4,424 | 4,424 | 100% |
| 110106 | Orange | Orange County | Cypress city | 252 | 327 | 369 | 401 | 407 | 411 | 412 | 100% |
| 110106 | Orange | Orange County | Los Alamitos city | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| 110108 | Orange | Orange County | Los Alamitos city | 7,221 | 7,479 | 7,484 | 7,525 | 7,540 | 7,604 | 7,605 | 100% |
| 110109 | Orange | Orange County | Cypress city | 876 | 1,263 | 1,503 | 1,665 | 1,691 | 1,714 | 1,714 | 100% |
| 110110 | Orange | Orange County | Buena Park city | 327 | 356 | 360 | 364 | 364 | 367 | 370 | 20% |
| 110110 | Orange | Orange County | Cypress city | 2,575 | 3,875 | 4,670 | 5,237 | 5,360 | 5,438 | 5,441 | 100% |
| 110111 | Orange | Orange County | Cypress city | 1,222 | 1,600 | 1,827 | 2,011 | 2,048 | 2,076 | 2,079 | 100% |
| 110111 | Orange | Orange County | La Palma city | 7 | 8 | 8 | 9 | 9 | 9 | 9 | 100% |
| 110113 | Orange | Orange County | Cypress city | 11,995 | 13,312 | 14,849 | 15,897 | 16,120 | 16,309 | 16,316 | 100% |
| 110113 | Orange | Orange County | Los Alamitos city | 2,901 | 2,916 | 2,916 | 2,939 | 2,943 | 2,966 | 2,966 | 100% |
| 110113 | Orange | Orange County | Stanton city | 37 | 37 | 37 | 37 | 37 | 37 | 37 | 100% |
| 110114 | Orange | Orange County | Cypress city | 1,141 | 1,479 | 1,685 | 1,841 | 1,869 | 1,892 | 1,904 | 100% |
| 110117 | Orange | Orange County | Cypress city | 872 | 1,256 | 1,489 | 1,665 | 1,696 | 1,720 | 1,730 | 100% |
| 110117 | Orange | Orange County | Los Alamitos city | 15 | 16 | 16 | 19 | 19 | 19 | 19 | 100% |
| 110118 | Orange | Orange County | Cypress city | 83 | 83 | 83 | 83 | 83 | 84 | 84 | 100% |
| 110202 | Orange | Orange County | Buena Park city | 727 | 792 | 808 | 825 | 828 | 837 | 837 | 10% |
| 110202 | Orange | Orange County | Cypress city | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 50% |
| 110203 | Orange | Orange County | Buena Park city | 376 | 397 | 402 | 407 | 408 | 416 | 419 | 5% |
| 110304 | Orange | Orange County | Buena Park city | 217 | 265 | 267 | 271 | 271 | 274 | 275 | 8% |
| 110304 | Orange | Orange County | La Palma city | 141 | 166 | 173 | 178 | 179 | 181 | 181 | 15% |
| Total Population Based on SCAG | | | | 54,392 | 60,839 | 65,327 | 68,863 | 69,577 | 70,317 | 70,383 | |
| SCAG Growth Rate | | | | | | 7% | 5% | 1% | 1% | 0% | |

# Appendix H

Documentation of submittal to Library, Cities and Counties

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of Cypress
David Belmer
Community Development Director
P.O. Box 609
Cypress, CA 90630

Dear: David Belmer

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of Garden Grove
Matthew Fertal
Director of the Planning Department
P.O. Box 3070
Garden Grove, CA 92842

Dear: Matthew Fertal

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of La Palma
Douglas Dumhart
Director of Community Development
7822 Walker Street
La Palma, CA 90623

Dear: Douglas Dumhart

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of Los Alamitos
John Godlewski, AICP
Community Development Director
3191 Katella Avenue
Los Alamitos, CA 90720

Dear: John Godlewski, AICP

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of Seal Beach
Sean Crumby
Director of the Planning Department
211 8th Street
Seal Beach, CA 90740

Dear: Sean Crumby

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

City of Stanton
Steve Harris
Community Development Director
7800 Katella Avenue
Stanton, CA 90680

Dear: Steve Harris

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

Golden State
Water Company
A Subsidiary of American States Water Company

September 1, 2011

County of Orange County
Fancisco Alonso
Director of Planning & Development Services
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Dear: Fancisco Alonso

**RE: Golden State Water Company- 2010 Urban Water Management Plan**

Golden State Water Company (GSWC) adopted the 2010 Urban Water Management Plan (UWMP) following a public hearing on August 9, 2011. The 2010 UWMP was adopted in accordance with the Urban Water Management Planning Act and filed with DWR and the California Sate Library.

Pursuant to Section 10644(a) of the California Water Code, GSWC is required to file a copy of the adopted 2010 UWMP with any city or county within which GSWC provided water. Enclosed for your files is one copy of GSWC's adopted 2010 UWMP. It is also on our website at www.gswater.com.

If you have any questions you can contact me at (916) 853-3612.

Sincerely,
GOLDEN STATE WATER COMPANY

Ernest A. Gisler
Planning Manager

Enclosure

# Appendix I

Documentation of Water Use Projections Submittal

Golden State
Water Company
A Subsidiary of American States Water Company

11 February 2011

Mr. Kevin P. Hunt
General Manager
Municipal Water District Orange County
P.O. Box 20895
Fountain Valley, CA 92728

Subject: Golden State Water Company - Placentia and West Orange County System
2010 Urban Water Management Plan Preparation Notification and Supply Reliability Information Request

Dear Mr. Hunt:

Golden State Water Company (GSWC) is currently preparing its 2010 Urban Water Management Plan (UWMP) for the Placentia and West Orange County System as required by the Urban Water Management Planning Act (Act). Since Municipal Water District Orange County is a wholesale water supplier to GSWC, water use projections through 2035 are enclosed (Table 1) pursuant to §10631(k) of the Act. We would like to request confirmation of the anticipated water supply reliability, water supply sources, and other information as described below. This information may be provided by either (a) providing a copy of your Draft UWMP if all requested information is included or, (b) completing the enclosed tables and providing any additional documents as required.

1. Supply projections to 2035 (Table 2)
2. Single Dry Year Reliability to 2035 (Table 3)
3. Normal, single dry, and multiple dry year reliability (Table 4)
4. Basis of water year data (Table 5)
5. Factors resulting in inconsistency of supply (Table 6)
6. Assumptions used to determine retail agency supply projections, including conservation.
7. Recycled water projections to the Placentia and West Orange County service area (if applicable) (Table 7)
8. Describe any regional desalination opportunities, if any for the Placentia and West Orange County system (if applicable)

We appreciate your timely attention to the information requested above and ask you provide a response no later than **18 February 2011**. Kennedy/Jenks Consultants is assisting GSWC with preparation of the 2010 UWMP and will be contacting you directly within the next week to follow up on this request. In the meantime, should you have any questions or concerns please feel free to contact me at (916) 853-3612.

Very truly yours,

GOLDEN STATE WATER COMPANY

Ernest Gisler
Planning Manager

Enclosures

cc: Sean Maguire, Kennedy/Jenks Consultants

3035 Prospect Park Drive, Ste. 60, Rancho Cordova, CA 95670
Tel: (916) 853-3600 Fax: (916) 852-0171 www.aswater.com

# Appendix J

Urban Water Management Plan Checklist

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

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| PLAN PREPARATION | | | | | |
| 4 | Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable. | 10620(d)(2) | | 1.6 | 1-8 |
| 6 | Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments. | 10621(b) | | 1.6 | 1-8 |
| 7 | Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq. | 10621(c) | | 1.6 | 1-8 |
| 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) | | Appendix H | |
| 55 | Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. | 10642 | | 1.6 | 1-8 |
| 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 | | Page vii | Vii |
| 57 | Provide supporting documentation that the plan has been adopted as prepared or modified. | 10642 | | 1.6 | 1-8 |
| 58 | Provide supporting documentation as to how the water supplier plans to implement its plan. | 10643 | | 1.8 | 1-9 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 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) | | 1.7 Appendix H | 1-8 |
| 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 | | 1.7 | 1-9 |
| SYSTEM DESCRIPTION | | | | | |
| 8 | Describe the water supplier service area. | 10631(a) | | 2.1 | 2-1 |
| 9 | Describe the climate and other demographic factors of the service area of the supplier | 10631(a) | | 2.2 & 2.4 | 2-1 & 2-10 |
| 10 | Indicate the current population of the service area | 10631(a) | Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M. | 2.3 | 2-5 |
| 11 | Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections. | 10631(a) | 2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents. | 2.3.2 | 2-5 |
| 12 | Describe other demographic factors affecting the supplier's water management planning. | 10631(a) | | 2.2 & 2.4 | 2-1 & 2-10 |
| 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) | | 3.2 | 3-4 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 2 | *Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009. | 10608.36<br>10608.26(a) | Retailers and wholesalers have slightly different requirements | 4.6 | 4-8 |
| 3 | Report progress in meeting urban water use targets using the standardized form. | 10608.40 | | Not Applicable | |
| 25 | Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture. | 10631(e)(1) | Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years. | 3.3 | 3-9 |
| 33 | Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types | 10631(k) | Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030. | 3.7<br>Appendix I | 3-15 |
| 34 | Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier. | 10631.1(a) | | 3.8 | 3-16 |
| SYSTEM SUPPLIES | | | | | |
| 13 | Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030. | 10631(b) | The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided. | 4.1 | 4-2 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 14 | Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate “not applicable” in lines 15 through 21 under the UWMP location column. | 10631(b) | Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other. | 4.3 | 4-3 |
| 15 | Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization. | 10631(b)(1) | | 4.3 | 4-3 |
| 16 | Describe the groundwater basin. | 10631(b)(2) | | 4.3 | 4-3 |
| 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 | |
| 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) | | 4.3.1 | 4-6 |
| 20 | Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years | 10631(b)(3) | | 4.3 | 4-3 |
| 21 | Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped. | 10631(b)(4) | Provide projections for 2015, 2020, 2025, and 2030. | 4.3 | 4-3 |
| 24 | Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis. | 10631(d) | | 4.4 | 4-7 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 30 | Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project. | 10631(h) | | 4.5 | 4-7 |
| 31 | Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater. | 10631(i) | | 4.7 | 4-9 |
| 44 | Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area. | 10633 | | 4.8 | 4-11 |
| 45 | Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal. | 10633(a) | | 4.8.2 | 4-12 |
| 46 | Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project. | 10633(b) | | 4.8.2 | 4-12 |
| 47 | Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use. | 10633(c) | | 4.8.2 | 4-12 |
| 48 | Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses. | 10633(d) | | 4.8.3 | 4-14 |
| 49 | The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected. | 10633(e) | | 4.8 | 4-11 |
| 50 | Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year. | 10633(f) | | 4.8.4 | 4-15 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 51 | Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use. | 10633(g) | | 4.8.4 | 4-15 |
| WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b] | | | | | |
| 5 | Describe water management tools and options to maximize resources and minimize the need to import water from other regions. | 10620(f) | | 1.10 | 1-11 |
| 22 | Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years. | 10631(c)(1) | | 6.1 | 6-1 |
| 23 | For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable. | 10631(c)(2) | | 6.1.4 | 6-7 |
| 35 | Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage | 10632(a) | | 8.1 | 8-1 |
| 36 | Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply. | 10632(b) | | 8.2 | 8-3 |
| 37 | Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster. | 10632(c) | | 8.3 | 8-4 |
| 38 | Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning. | 10632(d) | | 8.4 | 8-6 |
| 39 | Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply. | 10632(e) | | 8.4 | 8-6 |
| 40 | Indicated penalties or charges for excessive use, where applicable. | 10632(f) | | 8.4 | 8-6 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 41 | Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments. | 10632(g) | | 8.5 | 8-8 |
| 42 | Provide a draft water shortage contingency resolution or ordinance. | 10632(h) | | 8.4 & Appendix F | 8-6 |
| 43 | Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis. | 10632(i) | | 8.6 | 8-10 |
| 52 | Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability | 10634 | For years 2010, 2015, 2020, 2025, and 2030 | 5 | 5-1 |
| 53 | Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier. | 10635(a) | | 6.2 – 6.4 | 6-8 |
| DEMAND MANAGEMENT MEASURES | | | | | |
| 26 | Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided. | 10631(f)(1) | Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules. | 7.1 | 7-2 |
| 27 | Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP. | 10631(f)(3) | | 7.1 | 7-2 |
| 28 | Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand. | 10631(f)(4) | | 7.2 | 7-4 |

| No. | UWMP requirement [a] | Calif. Water Code reference | Additional clarification | UWMP location | Page Number |
|---|---|---|---|---|---|
| 29 | Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work. | 10631(g) | See 10631(g) for additional wording. | 7.2 & Appendix D | 7-4 |
| 32 | Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU. | 10631(j) | Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29. | N/A | |

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

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