



## **Santa Margarita Water District**

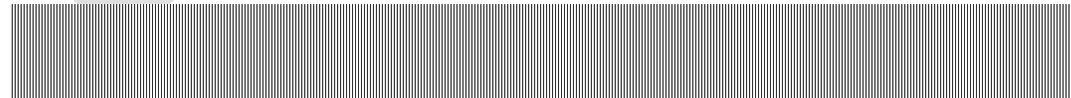
26111 Antonio Parkway • Rancho Santa Margarita, CA 92688

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# **2010 Urban Water Management Plan**

June 2011

DRAFT



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## Acronyms Used in the Report

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20x2020	20% water use reduction in GPCD by year 2020
Act	Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
AMP	Allen-McColloch Pipeline
ATM	Aufdenkamp Transmission Main
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
Board	Metropolitan's Board of Directors
CDR	Center for Demographic Research
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVWD	Cucamonga Valley Water District
CWRP	Chiquita Water Reclamation Plant
DMM	Demand Management Measure
DWR	Department of Water Resources
EIR	Environmental Impact Report
EOCF #2	East Orange County Feeder #2
ETo	Evapotranspiration
ETWD	El Toro Water District
FY	Fiscal Year
GPCD	gallons per capita per day
gpm	gallons per minute
GSWC	Golden State Water Company
HECW	High Efficiency Clothes Washer
HET	high efficiency toilet
HGWCW	Home Gardeners Water Conservation Workshops
HOA	Homeowners Association
I.D.	Improvement District
IEUA	Inland Empire Utilities Agency
IRP	Integrated Water Resources Plan
IRWD	Irvine Ranch Water Treatment Plant
IWA	International Water Association
JTM	Joint Transmission Main
LOI	Letter of Intent

LPCP	Landscape Performance Certification Program
MAF	million acre-feet
Metropolitan	Metropolitan Water District of Southern California
MG	million gallons
MGD	million gallons per day
MNWD	Moulton Niguel Water District
MOU	Memorandum of Understanding
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
OBMP	Optimum Basin Management Program
OCWD	Orange County Water District
OCWRP	Oso Creek Water Reclamation Plant
PC	Pressure Check
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
RUWMP	Regional Urban Water Management Plan
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAG	Southern California Association of Governments
SCP	South County Pipeline
SDCWA	San Diego County Water Authority
SJBA	San Juan Basin Authority
SMWD	Santa Margarita Water District
SOCIRWMP	South Orange County Integrated Regional Watershed Management Plan
SOCWA	South Orange County Wastewater Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TCWD	Trabuco Canyon Water District
TDS	Total Dissolved Solids
ULFT	ultra-low-flush toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WEROC	Water Emergency Response Organization of Orange County
WOCWBF #2	West Orange County Water Board Feeder #2
WRP	Water Reclamation Plant
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management Plan
WTP	Water Treatment Plant

# Executive Summary

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This report serves as the 2010 update of Santa Margarita Water District's (SMWD) Urban Water Management Plan (UWMP). The UWMP has been prepared consistent with the requirements under Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act), which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015.

## Service Area and Facilities

SMWD provides water to a population of more than 150,000 people throughout its 62,674 acre service area. SMWD receives its water from three main sources, the San Juan Basin, which is managed by the San Juan Basin Authority (SJBA), recycled water, and imported water from the Municipal Water District of Orange County (MWDOC). Groundwater is pumped from 1 active well located in the southeast corner of SMWD, and imported water is treated at the Diemer Filtration Plant and is delivered to SMWD through its imported water connections.

## Water Demand

Currently, the total water demand for retail customers served by SMWD is approximately 34,200 acre-feet annually consisting of 28,077 acre-feet of imported water, 65 acre-feet of groundwater, and 6,027 acre-feet of recycled water. SMWD is projecting an increasing demand trend of 36% in the next 25 years.

With MWDOC's assistance, SMWD has selected to comply with **Option 1** of the SBx7-7 compliance options. SMWD is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in

Orange County. Under Compliance Option 1, SMWD's 2015 interim water use target is 189.2 GPCD and the 2020 final water use target is **168.2 GPCD**.

### **Water Sources and Supply Reliability**

SMWD's main source of water supply is imported water from Metropolitan through purchases from MWDOC. Imported water is supplemented by recycled water and minor local groundwater supply from the San Juan Basin. Today, SMWD relies on approximately 82% imported water, 18% recycled water, and 0.2% local groundwater. The water supply mix is expected to shift more towards recycled water by 2015 as a result of the Chiquita WRP expansions. The two-phase expansion would add an additional 3,000 AFY of recycled water by 2015 and another 2,000 AFY by 2025. Another new source of supply expected by 2015 is potable water from the Baker WTP which SMWD has a capacity right of 9,400 AFY. By 2015, SMWD's water supply portfolio is expected to shift to 50% imported treated water, 20% potable water from Baker WTP from untreated imported water, 30% recycled water, and 0.3% local groundwater. Local groundwater from the San Juan Basin is a minor source of supply to SMWD's service area and is expected to remain so at around 100 AFY. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet full service demands of its member agencies with existing supplies from 2015 through 2035 during normal years, single dry year, and multiple dry years. SMWD is therefore capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035, as illustrated in Table 3-13, Table 3-14, and Table 3-15, respectively.

### **Future Water Supply Projects**

SMWD is working with neighboring agencies to expand a permanent interconnection and pumping facilities between the IRWD potable water distribution systems. The interconnection allows up to 30 cfs of water from IRWD to the South County agencies via the Joint Transmission Main (JTM) and the Aufdenkamp Transmission Main (ATM). The current project contemplates connection to the AMP.

The Baker Pipeline Regional Water Treatment Plant will be a new 25 MGD plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago

Lateral and Irvine Lake through the Baker Pipeline. The Baker Water Treatment Plant is currently in design and is scheduled for construction in 2011 and expected to come online in Fiscal Year (FY) 2012-13. SMWD plans to take approximately 9,400 AFY from the Baker WTP.

SMWD is constructing the Upper Chiquita Reservoir with a capacity of 244 MG (750 AF), near Oso Parkway and the 241 Toll Road. The reservoir will act as a large-scale emergency potable water supply during planned or unplanned service disruptions for South Orange County agencies. Construction began in 2009 and is expected to be completed in Fall 2011.

SMWD is planning to expand its Chiquita WRP tertiary capacity from 5 MGD to 10 MGD by 2015, increasing production to 11,200 AFY. The expansion will reduce SMWD's dependency on imported water and provide recycled water for irrigation purposes. Rancho Mission Viejo (RMV) holds riparian water rights for its ranching, agriculture and tenants uses. RMV and SMWD are contemplating an agreement whereby RMV will supply water to supplement the recycled water service to areas of The Ranch Plan. The supplemental water may be utilized in event recycled water is unavailable.

Rancho Mission Viejo holds riparian water rights for its ranching, agriculture and tenants uses. RMV and SMWD are contemplating an agreement whereby RMV will supply water to supplement the recycled water service to areas of The Ranch Plan. The supplemental water may be utilized in event recycled water is unavailable.

SMWD is a partner in the Cadiz Valley Water Conservation, Recovery and Storage Project, a potential new water source from a large, renewable aquifer located in the eastern Mojave Desert in San Bernardino County. The proposed Project would manage the aquifer and conserve water from nearby watersheds otherwise being lost to evaporation in local dry lakes. Conserved water would be collected and delivered to SMWD and other water agencies. There would also be an option for carry-over water storage in the Cadiz Aquifer. SMWD is also exploring possibilities for a storage project that in wet years, would store water from the Colorado River Aqueduct into the Cadiz aquifer. This water could be used when needed in dry years.

In Orange County, there are three proposed ocean desalination projects including one that specifically that may benefit SMWD. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project. On June 23, 2009, SMWD signed a non-binding LOI for 4.5 MGD (5,000 AFY) of Huntington Beach Seawater Desalination Project supplies.



# 1. Introduction

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## 1.1. Urban Water Management Plan Requirements

Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act) requires "every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually" to prepare, adopt, and file an UWMP with the California Department of Water Resources (DWR) every five years. 2010 UWMP updates are due to DWR by August 1, 2011.

This UWMP provides DWR with information on the present and future water resources and demands and provide an assessment of SMWD's water resource needs. Specifically, this document will provide water supply planning for a 25-year planning period in 5-year increments. The plan will identify water supplies for existing and future demands, quantify water demands during normal year, single-dry year, and multiple-dry years, and identify supply reliability under the three hydrologic conditions. SMWD's 2010 UWMP update revises the 2005 UWMP. This document has been prepared in compliance with the requirements of the Act as amended in 2009, and includes the following analysis:

- Water Service Area and Facilities
- Water Sources and Supplies
- Water Use by Customer Type
- Demand Management Measures
- Water Supply Reliability
- Planned Water Supply Projects and Programs
- Water Shortage Contingency Plan
- Recycled Water

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7, enacted in 2009, is the water conservation component of the historic Delta package. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. Each urban retail water supplier must include in its 2010 UWMPs the following information from its target-setting process:

- Baseline daily per capita water use
- 2020 Urban water use target
- 2015 Interim water use target
- Compliance method being used along with calculation method and support data

Wholesale water suppliers are required to include an assessment of present and proposed future measures, programs, and policies that would help achieve the 20 by 2020 goal.

The other recent amendment made to the UWMP Act to be included in the 2010 UWMP is set forth by SB 1087, Water and Sewer Service Priority for Housing Affordable to Low-Income Households. SB 1087 requires water and sewer providers to grant priority for service allocations to proposed developments that include low income housing. SB 1087 also requires UWMPs to include projected water use for single- and multi-family housing needed for low-income households.

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, and 10633. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of SMWD's water utility. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.



Figure 1-1: Regional Location of Urban Water Supplier

## 1.2. Agency Overview

SMWD, established in December 1964 under provisions of the California Water District Law, includes 62,674 acres in the southeastern corner of Orange County. The governing body of SMWD (and all improvement districts therein) is a five-member Board of Directors, publicly elected at large for staggered four-year terms. SMWD's responsibilities as authorized by the California Water District Law are:

- Distribution of domestic water for consumption and fire protection.
- Collection and treatment of wastewater.
- Distribution of recycled water along with the collection and distribution of urban return flows for irrigation purposes.

The current members of SMWD's Board of Directors are:

- Roger Faubel
- Sandra Jacobs
- Betty H. Olson, Ph.D.
- Charley Wilson
- Bill Lawson

SMWD receives its water from three main sources, the San Juan Basin, which is managed by the San Juan Basin Authority (SJBA), recycled water, and imported water from the Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

## 1.3. Service Area and Facilities

### 1.3.1. SMWD's Service Area

SMWD is Orange County's second largest water district providing water and wastewater treatment services to more than 150,000 people within an area of 62,674 acres. SMWD is bounded on the north by El Toro Road in the City of Lake Forest, on the east by the Cleveland National Forest, on the south by United States Marine Corp Camp Pendleton and San Diego County and on the west by the City of San Juan Capistrano and Moulton Niguel Water District. SMWD is responsible for inter-agency coordination and long range planning to meet future water supply and wastewater treatment needs for its service area as shown in Figure 1-2.

SMWD is divided into eight basic Improvement Districts (I.D.). These districts were formed to meet the needs of specific portions of SMWD based upon such factors as land use, topography, land ownership boundaries and the timing and characteristics of water supply and wastewater treatment needs. The Cities of Mission Viejo, Rancho Santa

Margarita and the incorporated communities of Coto de Caza, Las Flores and Ladera Ranch as well as the remaining undeveloped portion of the Rancho Mission Viejo are within the service boundary of SMWD.

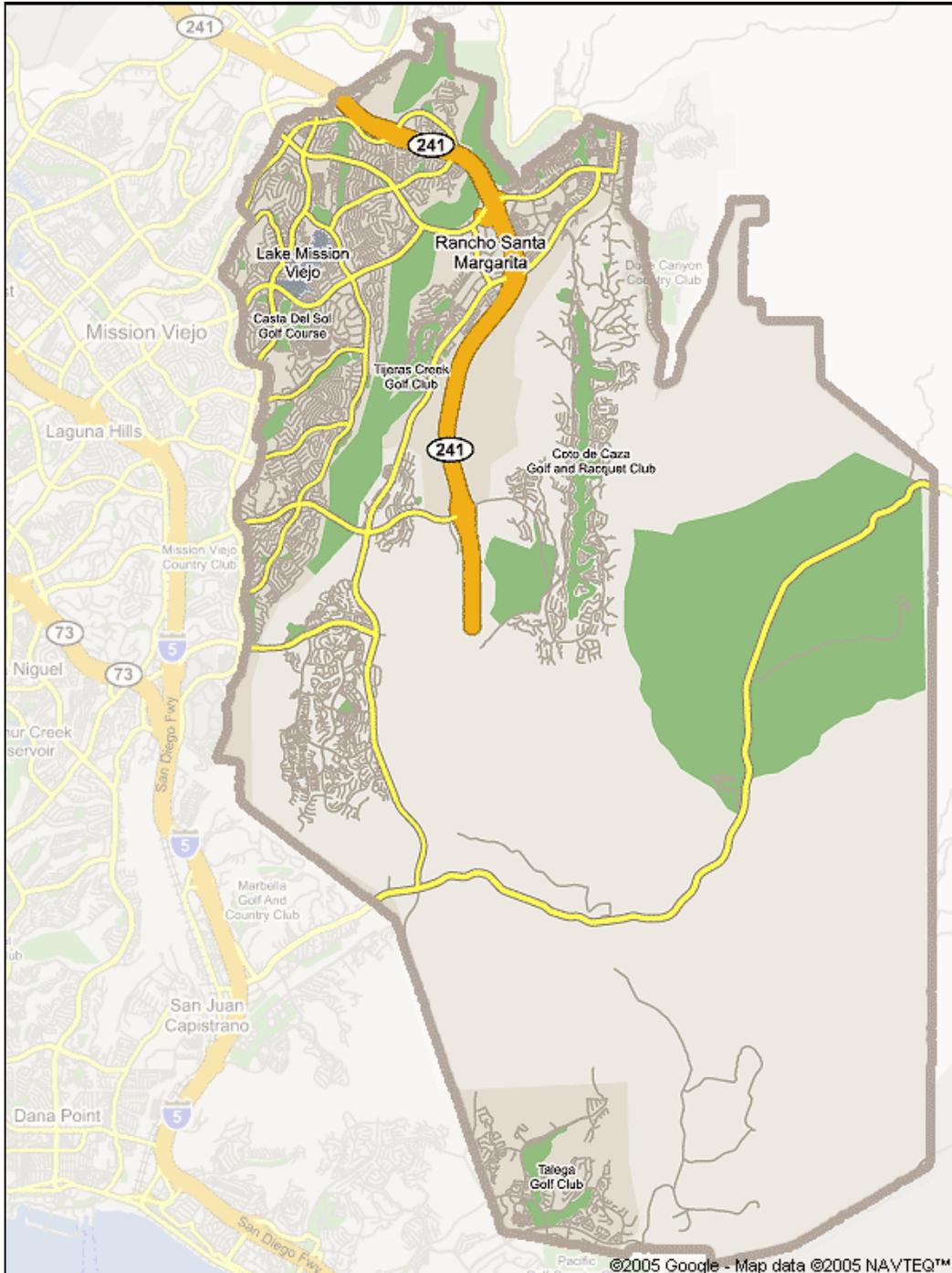


Figure 1-2: Santa Margarita Water District's Service Area

### **1.3.2. SMWD's Water Facilities**

SMWD's system consists of 1,209 miles of water and sewer lines, 29 domestic water reservoirs and 7 irrigation water reservoirs. Nearly all of SMWD's water supply is purchased from Metropolitan, which delivers water to the region from Northern California via the State Water Project (SWP) and from the Colorado River via the Colorado River Aqueduct (CRA). Water from both sources is treated at the Diemer Filtration Plant in Yorba Linda prior to delivery to SMWD.

## 2. Water Demand

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### 2.1. Overview

Currently, the total water demand for retail customers served by SMWD is approximately 34,200 acre-feet annually consisting of 28,077 acre-feet of imported water, 65 acre-feet of groundwater, and 6,027 acre-feet of recycled water. SMWD is projecting an increasing demand trend of 36% in the next 25 years.

The passage of SBx7-7 will increase efforts to reduce the use of potable supplies in the future. This new law requires all of California's retail urban water suppliers serving more than 3,000 AFY or 3,000 service connections to achieve a 20% reduction in potable water demands (from a historical baseline) by 2020. Due to great water conservation efforts in the past decade, SMWD is on its way to meeting this requirement on its own. Moreover, SMWD has elected to join the Orange County 20x2020 Regional Alliance. SMWD together with other 28 retail agencies in Orange County are committed to reduce the region's water demand by 2020 through the leadership of MWDOC, the region's wholesale provider.

This section will explore in detail SMWD's current water demands by customer type and the factors which influence those demands as well as providing a perspective of its expected future water demands for the next 25 years. In addition, to satisfy SBx7-7 requirements, this section will provide details of SMWD's SBx7-7 compliance method selection, baseline water use calculation, and its 2015 and 2020 water use targets.

### 2.2. Factors Affecting Demand

Water consumption is influenced by many factors from climate characteristics of that hydrologic region, to demographics, land use characteristics, and economics. The key factors affecting water demand in SMWD's service area is discussed below.

#### 2.2.1. Climate Characteristics

SMWD's climate is mild, based on its location in close proximity to the Maritime Fringe Climatic Region of Southern California. SMWD has several microclimates based on its topography and the elevation change. The average annual rainfall is 13.84 inches. The average evapotranspiration (ET<sub>o</sub>) is almost 50 inches per year which is four times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts.

Since SMWD's service area includes a variety of elevations and areas within coastal influence, several of the larger homeowner associations have installed local weather stations to assist in controlling the irrigation demands. Ladera Ranch, Coto de Caza and Rancho Santa Margarita all have weather-based computer control systems which monitor the local weather data and determine the water demand on a daily basis.

The average temperature of SMWD's service area ranges from 58 degrees Fahrenheit in January to 74 degrees Fahrenheit in August with an average annual temperature of 65 degrees Fahrenheit. Annual precipitation is typically approximately 14 inches, occurring mostly between November and March (Table 2-1). The average evapotranspiration (ETo) is almost 50 inches per year, which is four times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts.

**Table 2-1: Climate Characteristics**

	Standard Monthly Average ETo (inches) [1]	Annual Rainfall (inches) [2]	Average Temperature (°F) [3]
Jan	2.18	3.18	58.0
Feb	2.49	3.05	59.1
Mar	3.67	2.78	60.2
Apr	4.71	0.67	63.0
May	5.18	0.25	65.7
Jun	5.87	0.11	69.3
Jul	6.29	0.02	72.9
Aug	6.17	0.12	74.3
Sep	4.57	0.34	73.2
Oct	3.66	0.36	68.9
Nov	2.59	1.17	62.4
Dec	2.25	1.79	57.9
<b>Annual</b>	<b>49.63</b>	<b>13.84</b>	<b>65.4</b>

[1] CIMIS Station #75, Irvine, California from October 1987 to Present

[2] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Precipitation Total

[3] NOAA, Santa Ana Fire Station, California 1971 to 2000, Mean Temperature

The source of SMWD's imported water supplies, the State Water Project and Colorado River Project, is influenced by weather conditions in Northern California and along the Colorado River. Both regions have recently been suffering from multi-year drought conditions and record low rainfalls which directly impact demands and supplies to Southern California.

### 2.2.2. Demographics

SMWD serves a population of 155,229. The population within SMWD’s service area is expected to increase by 22 percent in the next 25 years, or 0.88 percent annually. Table 2-2 shows the population projections for the next 25 years based on the California State University at Fullerton, Center for Demographic Research (CDR) projections. Due to proactive water conservation efforts, future water demands are expected to increase at a lower rate compared to the population growth.

SMWD has seen continual growth since the early 1970's. For the last 10 years SMWD has added over 2,000 connections per year from 40,768 in FY1999-00 to 60,425 in FY2009-10.

**Table 2-2: Population – Current and Projected**

	2010	2015	2020	2025	2030	2035-opt
Service Area Population [1]	155,229	167,663	180,097	192,531	204,965	217,399

[1] Center for Demographic Research, California State University, Fullerton 2010

### 2.2.3. Land Use

SMWD is primarily a residential community. The typical commercial and industrial concerns within SMWD are primarily retail and warehouse, with a minor amount of manufacturing. Retail is concentrated in areas central to each of the communities and typically is a mix of grocery, restaurant and medical uses. Manufacturing is primarily in the Rancho Santa Margarita Business Park.

The Ranch Plan includes a mix of residential and commercial development in six planning areas and represents the build-out of the remaining open space within SMWD. The proposed residential development will consist of 14,000 units with 6,000 of the units being age-restricted units which have a lower water demand because of lower occupancy. The proposed commercial development is estimated to be 5.2 million square feet.

## 2.3. Water Use by Customer Type

The knowledge of an agency’s water consumption by type of use or by customer class is key to developing that agency’s water use profile which identifies when, where, how, and how much water is used, and by whom within the agency’s service area. A comprehensive water use profile is critical to the assessment of impacts of prior conservation efforts as well as to the development of future conservation programs.

This section provides an overview of SMWD’s water consumption by customer type in 2005 and 2010, as well as projections for 2015 to 2035. The customer classes are

categorizes as follows: single-family residential, multi-family residential, commercial/industrial/institutional (CII), dedicated landscape, and agriculture. Other water uses including sales to other agencies and non-revenue water are also discussed in this section.

### 2.3.1. Overview

SMWD has maintained approximately 58,600 customer connections to its water distribution system. SMWD is expected to add 15,819 more connections by 2035. All connections in SMWD’s service area are metered.

Approximately 60% of SMWD’s water demand is residential. CII including dedicated landscape consume approximately 40% of SMWD’s water supply. SMWD does not provide any sales to agriculture, nor other agencies, saline water intrusion barriers, groundwater recharge, or conjunctive use.

Tables 2-3 and 2-4 provide a summary of past, current, and projected water use by customer class and the number of water service customers by sector in five-year increments from 2005 through to 2035.

**Table 2-3: Past, Current and Projected Service Accounts by Water Use Sector**

Fiscal Year Ending	Number of Accounts by Water Use Sector				
	Single Family	Multi-Family	Commercial /Industrial	Landscape	Total Accounts
<b>2005</b>	34,737	17,677	2,047	2,620	<b>57,081</b>
<b>2010</b>	35,624	18,193	2,179	2,687	<b>58,683</b>
<b>2015</b>	36,468	15,971	2,231	2,751	<b>57,420</b>
<b>2020</b>	38,673	17,443	2,365	2,917	<b>61,398</b>
<b>2025</b>	45,161	19,361	2,762	3,406	<b>70,691</b>
<b>2030</b>	47,401	20,626	2,899	3,575	<b>74,502</b>
<b>2035</b>	47,401	20,626	2,899	3,575	<b>74,502</b>

**Table 2-4: Past, Current and Projected Water Demand by Water Use Sector**

Fiscal Year Ending	Water Demand by Water Use Sectors (AFY)				
	Single Family	Multi-Family	Commercial /Industrial	Landscape	Total Demand
2005	16,295	2,768	9,936	3,862	<b>32,861</b>
2010	17,702	2,936	1,948	11,583	<b>34,169</b>
2015	18,617	3,130	2,052	12,206	<b>36,006</b>
2020	20,499	3,419	2,257	13,424	<b>39,599</b>
2025	23,599	3,573	2,564	15,251	<b>44,987</b>
2030	24,458	3,573	2,645	15,733	<b>46,409</b>
2035	24,458	3,573	2,645	15,733	<b>46,409</b>

\* Number of meters and not total number of dwelling units. A portion of the multifamily meters serve more than one dwelling unit. SMWD requires condominium projects to meter each unit. Apartment complexes are allowed to have up to eight units per meter.

### 2.3.2. Residential

The residential sector accounts for approximately 61.3% of the existing water demand within SMWD. SMWD uses a planning factor of 450 gallons per day (gpd) per single family dwelling unit, 300 gpd per senior restricted dwelling units and 175 gpd for multi-family dwelling units.

### 2.3.3. Non-Residential

#### Commercial

SMWD has a mix of commercial uses including markets, restaurants, and governmental entities such as schools, fire stations and government offices, office complexes, light industrial, warehouses and facilities serving the public. Current commercial demand is 3.5% of the overall demand. SMWD uses a planning factor of 225 gallons/day/1,000 square feet of building space. A sampling of existing users indicates the average demand is lower; however, since uses can change, the higher factor is considered prudent.

#### Construction

SMWD has a variety of construction accounts with varying uses which currently account for 0.2% of existing demand. Construction demands are expected to increase in the near future. Demands are not in addition to new development, but occur temporarily and transitionally during construction as development occurs and, therefore, are included within the demand factors associated with new development. For this reason, separate projection factors are not generated for construction.

## Irrigation

SMWD's water demands include recycled and domestic irrigation accounts. Existing centralized irrigation demands are 33.9 % of SMWD's total water demands, with 17.9% of total irrigation demands provided by the recycled water system. Analysis of the Ladera Ranch irrigation system indicates that water requirements during the initial planting for slopes and shrub areas are 3.5 acre-feet per acre per year (AFY) and 4.0 AFY for turf areas. An overall system review indicates the average throughout SMWD is 2.5 AFY. For purposes of this UWMP, a conservative factor of 3.5 AFY is used for slopes and turf, respectively.

### 2.3.4. Other Water Uses

Uses, other than residential, commercial, irrigation or construction, are less than 2% of water use. These other uses include water used by SMWD facilities and for lakefill for the man-made lakes in Mission Viejo and Rancho Santa Margarita. SMWD uses will remain consistent in demand. Service agreements with SMWD for lakefill prioritize residential, commercial, construction and irrigation uses in the event of water shortage periods, enabling interruptions or avoided deliveries of water for lakefill.

#### 2.3.4.1. Sales to Other Agencies

SMWD is a permitted wholesale agency because it operates the South County Pipeline, a regional distribution pipeline. The water delivered to other agencies is imported water from Metropolitan through MWDOC.

#### 2.3.4.2. Non-Revenue Water

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. Non-revenue water consists of three components: unbilled authorized consumption (e.g. hydrant flushing, fire fighting, and blow-off water from well start-ups), real losses (e.g. leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies).

SMWD's non-revenue water accounts for about 3 percent of the total demand (Table 2-5).

**Table 2-5: Additional Water Uses and Losses (AFY)**

Water Use	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Saline Barriers							
Groundwater Recharge							
Conjunctive Use							
Raw Water							
Unaccounted-for water	1,025	1,025	1,080	1,188	1,350	1,392	1,392
<b>Total</b>	<b>1,025</b>	<b>1,025</b>	<b>1,080</b>	<b>1,188</b>	<b>1,350</b>	<b>1,392</b>	<b>1,392</b>

## 2.4. SBx7-7 Requirements

### 2.4.1. Overview

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement Governor Schwarzenegger’s 2008 water use reduction goals to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. As discussed above, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply to SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirement will not be eligible for water related grant, or loan, from the state on and after July 16, 2016. However, if an agency that is not in compliance documents a plan and obtains funding approval to come into compliance then could become eligible for grants or loans.

### 2.4.2. SBx7-7 Compliance Options

DWR has established four compliance options for urban retail water suppliers to choose from. Each supplier is required to adopt one of the four options to comply with SBx7-7 requirements. The four options include:

- *Option 1* requires a simple 20% reduction from the baseline by 2020 and 10% by 2015.
- *Option 2* employs a budget-based approach by requiring an agency to achieve a performance standard based on three metrics
  - Residential indoor water use of 55 GPCD
  - Landscape water use commiserate with Model Landscape Ordinance

- 10 percent reduction in baseline CII water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan.
- *Option 4* requires the subtraction of Total Savings from the Base GPCD:
  - Total Savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

### **SMWD's Compliance Option Selection**

With MWDOC's assistance in the calculation of SMWD's base daily per capita use and water use targets, SMWD has selected to comply with **Option 1**.

While each retail agency is required to choose a compliance option in 2010, DWR allows for the agency to change its compliance option in 2015. This will allow SMWD to determine its water use targets for Compliance Option 2 and 4 as it anticipates more data to be available for targets calculation in the future.

#### **2.4.3. Regional Alliance**

Retail agencies can choose to meet the SBx7-7 targets on its own or several retail agencies may form a regional alliance and meet the water use targets as a region. The benefit for an agency that joins a regional alliance is that it has multiple means of meeting compliance.

SMWD is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2010 RUWMP. The Regional Alliance Weighted 2015 target is 174 GPCD and 2020 target is 157 GPCD.

#### **2.4.4. Baseline Water Use**

The first step to calculating an agency's water use targets is to determine its base daily per capita water use (baseline water use). This baseline water use is essentially the agency's gross water use divided by its service area population, reported in gallons per capita per day (GPCD). The baseline water use is calculated as a continuous 10-year average during a period, which ends no earlier than December 31, 2004 and no later than December 31, 2010. Agencies that recycled water made up 10% or more of 2008 retail water delivery can use up to a 15-year average for the calculation.

Recycled water use represented more than 10% of SMWD's retail delivery in 2008; therefore, a 15-year instead of a 10-year rolling average was calculated. SMWD's baseline water use is **210.2 GPCD** which was obtained from the 15-year period July 1, 1990 to June 30, 2005.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for SMWD as well as the service area population and annual water use data which the base daily per capita water use was derived. Data provided in Table 2-6 was used to calculate the continuous 15-year average baseline GPCD. Moreover, regardless of the compliance option adopted by SMWD, it will need to meet a minimum water use target of 5% reduction from a five-year baseline as calculated in Table 2-7.

**Table 2-6: Base Daily per Capita Water Use – 15-year range**

Highest Available Baseline [1]	Beginning	Ending
15 Year Avg	July 1, 1990	June 30, 2005

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
1991	59,571	15,709,321	264
1992	66,025	14,147,022	214
1993	71,960	14,837,201	206
1994	76,106	15,070,564	198
1995	79,610	15,767,260	198
1996	84,165	18,085,980	215
1997	90,320	20,848,483	231
1998	97,020	18,169,987	187
1999	103,709	21,665,342	209
2000	113,065	25,065,798	222
2001	119,273	23,765,519	199
2002	126,415	26,086,828	206
2003	132,609	27,158,119	205
2004	139,822	29,976,507	214
2005	146,572	27,101,340	185
<b>Base Daily Per Capita Water Use:</b>			<b>210.2</b>

[1] The most recent year in base period must end no earlier than December 31, 2004, and no later than December 31, 2010. The base period cannot exceed 10 years unless at least 10 percent of 2008 retail deliveries were met with recycled water.

**Table 2-7: Base Daily per Capita Water Use – 5-year range**

Highest Available Baseline [2]		Beginning	Ending
5 Year Avg		July 1, 2003	June 30, 2008
Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2004	139,822	29,976,507	214
2005	146,572	27,101,340	185
2006	149,107	29,408,901	197
2007	151,847	31,107,879	205
2008	153,264	29,343,284	191
Base Daily Per Capita Water Use:			198.6

[2] The base period must end no earlier than December 31, 2007, and no later than December 31, 2010.

#### 2.4.5. SBx7-7 Water Use Targets

Under Compliance Option 1, the simple 20% reduction from the baseline, SMWD’s 2015 interim water use target is 189.2 GPCD and the 2020 final water use target is **168.2 GPCD** as summarized in Table 2-8.

**Table 2-8: Preferred Compliance Option and Water Use Targets**

	Baseline	2015 Target	2020 Target
Option 1 - Simple 20% Reduction	210.2	189.2	168.2

#### 2.4.6. Water Use Reduction Plan

SMWD is a member agency of MWDOC and a member of the Orange County 20x2020 Regional Alliance comprising 29 retail urban water suppliers in Orange County. The Orange County 20x2020 Regional Alliance was created to allow local water suppliers to meet their 20% by 2020 reduction targets under SBx7-7 on a regional basis through the successful implementation of region-wide programs.

The Orange County 20x2020 Regional Alliance will achieve its water use reduction by building on the existing collaboration between Metropolitan, MWDOC and the local agencies in Orange County. MWDOC as a regional wholesale water provider implements many of the urban water conservation Best Management Practices (BMPs) on behalf its member agencies. MWDOC’s conservation measures are detailed in MWDOC’s RUWMP Section 4, and Metropolitan’s conservation measures detailed in Metropolitan’s 2010 RUWMP Section 3.4.

Additionally, Metropolitan in collaboration with MWDOC and other Metropolitan member agencies is in the process of developing a Long Term Conservation Plan,<sup>1</sup> which seeks an aggressive water use efficiency target in order to achieve a 20% reduction in per capita water use by 2020 for the entire Metropolitan service area.

### **Metropolitan Long Term Conservation Plan**

Metropolitan's Long Term Conservation Plan will build on Metropolitan's traditional programs of incentives, education and broad outreach while developing a new vision of water use efficiency by altering the public's perspective on water through market transformation. The overarching goals of the Long Term Conservation Plan are as follows:

- Achieve the 2010 IRP conservation target – The target for new water savings through conservation is a regional per capita use of 159 gallons per day in 2015 and 141 gallons per day in 2020.
- Pursue innovation that will advance water conservation
- Transform the public's value of water within this region – A higher value on water within this region can lead to a conservation ethic that results in permanent change in water use behavior, earlier adoption of new water saving technologies, and transition towards climate-appropriate landscapes.

Achieving these goals requires the use of integrated strategies that leverage the opportunities within this region. It requires regional collaboration and sustained support for a comprehensive, multi-year program. It requires a commitment to pursue behavioral changes and innovation in technologies that evolve the market for water efficient devices and services. It requires strategic, focused implementation approaches that build from broad-based traditional programs. It requires that research be conducted to provide the basis for decisions. Lastly, it requires the support of local leaders to communicate a new value standard for water within this region. Metropolitan and its member agencies will implement the five strategies through a traditional program, a market acceleration program, and legislation and regulation. The five strategies include:

- **Use catalysts for market transformation.** Metropolitan and member agencies will pursue market transformation to affect the market and consumer choices for water efficient devices and services.
- **Encourage action through outreach and education.** Metropolitan and member agencies will provide outreach, educational workshops, and training classes through a range of media and formats which are essential to changing public perceptions of the value of water.

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<sup>1</sup> Metropolitan Water District of Southern California Long Term Conservation Plan Working Draft Version 6 (November 30, 2010)

- **Develop regional technical capability.** Metropolitan and member agencies will conduct research, facilitate information sharing, and/or provide technical assistance to member agencies and retail agencies to develop technical capabilities within the region for water budgeting, advanced metering infrastructure, ordinances, retail rate structures, and other conservation measures.
- **Build strategic alliances.** Metropolitan and member agencies will form strategic alliances with partners to leverage resources, opportunities and existing momentum that support market transformation.
- **Advance water efficiency standards.** Metropolitan and member agencies will work to advance water efficiency codes and standards to increase efficiency and reduce water waste.

Successful market transformation requires the integrated use of all five strategies. It is implemented through three complementary programs: traditional and market acceleration programs, and legislation and regulation. When used together, these approaches can be catalytic and transform markets.

**Traditional Program:** A traditional program of incentives, outreach, education, and training will be used to provide a foundation of water savings, establish baseline conditions, provide market data, and help determine devices and services that are primed for market acceleration. Implementation may include regional incentive programs, pilot programs, regional outreach, and research for a variety of devices and services.

**Market Acceleration Program:** A portion of Metropolitan’s resources will be used for market acceleration of devices and services that have potential for market change. Metropolitan will use a strategic focus for a specified time period to affect the market for a particular device or service. Tactics may include strategic outreach to manufacturers, retailers, contractors, and consumers; enhanced incentives; and collaboration on implementation.

**Legislation and Regulation:** Are important tools and often the primary means for ensuring future water savings from devices and services. Regulation, ordinances and codes establish conditions that will ensure a minimum level of water efficiency for a particular device or service in the future. Markets are dynamic, and the influences on manufactures, retailers, and consumers are constantly changing. Progress made on changing consumer preferences a market share of efficient products is protected through legislation and regulations requiring a minimum efficiency standard. This benefits both water agencies and manufactures who invest in bringing water-efficiency technologies to the market. Legislation and regulation are also effective exit strategies to discontinue traditional incentive programs so that resources can be redirected to new technologies and approaches.

Implementation of the combined programs, Traditional - Market Acceleration – Legislation and Regulation, will be closely coordinated between Metropolitan, member agencies and sub-agencies to maximize synergies. An adaptive management approach will be employed using research, implementation and evaluation to guide decisions on program activities and intensity.

### **Periodic Review**

A periodic review of conservation actions to measure progress towards the water savings goals will be an integral component of the effort. The review will include work that is completed or in progress. It will consider factors that have affected the results as well as the opportunities to improve cost effectiveness and water savings.

## **2.5. Demand Projections**

### **2.5.1. 25 Year Projections**

One of the main objectives of this UWMP is to provide an insight into SMWD’s future water demand outlook. As discussed above, currently, SMWD’s total water demand is 34,169 acre-feet comprising of approximately 82% imported water and 18% recycled water. Local groundwater from the San Juan Basin accounts for a very minor 0.2% of SMWD’s water portfolio.

As illustrated in Table 2-9, SMWD’s water demand is expected to increase by 36% in the next 25 years, while population within City limits is expected to increase by 40% representing a relatively high growth area for Orange County. The water supply mix is expected to shift more towards recycled water by 2015 with recycled water use increasing to about 21%. The current combined recycled water production from the Chiquita Water Reclamation Plant (WRP), Oso Creek WRP, and Nichols Institute is about 6,600 AFY. The planned expansion of Chiquita WRP from 5 MGD to 8 MGD by 2015 is expected to yield an additional 3,000 AFY. Another expansion of Chiquita WRP to 10 MGD by 2025 will increase production by another 2,000 AFY to a total of 11,200 AFY from the Chiquita WRP alone. These expansions will reduce SMWD’s dependency on imported water and provide recycled water for irrigation purposes.

Moreover, the Baker Water Treatment Plant (WTP) is expected to come online by 2015. SMWD has a capacity right of 9,400 acre-feet (AF) and is projected to receive the full capacity right from the Baker Treatment Plant. The expansions of Chiquita WRP and the new Baker WTP will decrease the reliance of SMWD on Metropolitan imported treated water through MWDOC. Once Chiquita WRP Phase 1 expansion is complete and the Baker WTP comes online, SMWD’s water supply mix is projected to shift to 53% Metropolitan water, 26% from Baker Treatment Plant, 21% recycled water, and 0.3% local groundwater.

**Table 2-9: Current and Projected Water Demands (AFY)**

Water Supply Sources	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035
MWDOC (Imported Treated/Untreated Full Service (non-int.))	28,077	19,067	20,480	23,121	24,033	24,033
Baker Treatment Plant (Imported Untreated Full Service (non-int.))	-	9,400	9,400	9,400	9,400	9,400
San Juan Basin	65	100	116	116	116	116
Recycled Water	6,027	7,439	9,603	12,350	12,860	12,860
<b>Total</b>	<b>34,169</b>	<b>36,006</b>	<b>39,599</b>	<b>44,987</b>	<b>46,409</b>	<b>46,409</b>

SMWD’s 25-year demand projections for imported water shown in Table 2-10 are based on the projections provided by SMWD to MWDOC. As the regional wholesale supplier of Orange County, MWDOC works in collaboration with each of its member agencies as well as with Metropolitan, its wholesaler, to develop demand projections for imported water.

**Table 2-10: SMWD’s Demand Projections Provided to Wholesale Suppliers (AFY)**

Wholesales	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	19,067	20,480	23,121	24,033	24,033
Baker	9,400	9,400	9,400	9,400	9,400

### 2.5.2. Low Income Household Projections

One significant change to the UWMP Act since 2005 is the requirement that retail water suppliers develop water use projections for “low-income” households at the single-family and multifamily level. These projections assist retail suppliers with compliance with Section 65589.7 of the Government Code, which requires suppliers to grant a priority for the provision of service to low income households. Consistent with this Code section, a low-income household is defined as a household earning 80% of the County of Orange’s median income or less.

In order to identify the low income housing projections within its service area, DWR<sup>2</sup> recommends that retail suppliers rely on the Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of

<sup>2</sup> California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)

governments (COG), in coordination with the California Department of Housing and Community Development.

The RHNA process quantifies the need for housing by income group within each jurisdiction during specific planning period and is used in Housing Element and General Plan updates. COGs are required by the State Housing Law to determine the existing and projected regional housing needs for persons at all income levels. The RHNA is to prioritize local resource allocation and to help decide how to address existing and future housing needs.

Existing and projected housing needs for Orange County were incorporated into the Southern California Association of Governments' (SCAG) 2007 Final Regional Housing Need Allocation Plan (2007 RHNA Plan)<sup>3</sup>. This plan covers the planning period January 1, 2006 to June 30, 2014. The next RHNA process is not expected to be completed until fall of 2012; therefore, the 2007 RHNA Plan will be used for the purpose of this 2010 UWMP.

The projected water demands for low-income households in the SMWD service area was estimated by calculating the percentage of projected low income units in the service area as a percentage of the total projected units from the 2007 RHNA Plan. Given that SMWD's service area covers portions of three cities and a portion of unincorporated area within Orange County, a weighted average of the RHNA projection for each city/unincorporated area served by SMWD was calculated based on the proportion of each city/unincorporated area within the water district. For example, as summarized in Table 2-11, approximately 45% of SMWD's service area lies within the City of Mission Viejo. Based on the 2007 RHNA Plan, the projected housing need for low-income households in the City of Mission Viejo is 40.4% of total housing needs. Therefore, the area weighted projected water demands for low-income households for the City of Mission Viejo is 18.18% (45% times 40.6%). The same procedure is repeated for all cities within SMWD's service area, which results in an overall projected housing need for low-income households of 40.3% as a percentage of total housing units.

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<sup>3</sup> Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

**Table 2-11: Weighted Percentage of Low-income Household Needs within MNWD's Service Area**

City	% Area Served	% Low-income Households by City (RHNA)	Weighted % Low-income Households
Mission Viejo	45%	40.4%	18.18%
Rancho Santa Margarita	20%	40.7%	8.14%
San Clemente	15%	39.2%	5.88%
Unincorp. Area	20%	40.4%	8.08%
Total	100%	<b>Weighted Average</b>	<b>40.3%</b>

Table 2-12 provides a breakdown of the projected water needs for low-income single family and multifamily units. The projected water demands shown here represent 40.3% of the projected water demand by customer type for single-family and multifamily categories provided in Table 2-4 above. For example, the total single-family residential demand is projected to be 18,617 AFY in 2015 and 24,458 AFY in 2035. The projected water demands for housing needed for single family low-income households are 7,499 and 9,852 AFY for 2015 and 2035, respectively.

**Table 2-12: Projected Water Demands for Housing Needed for Low-income Households (AFY)**

Water Use Sector	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Retail Demand	36,006	39,599	44,987	46,409	46,409
Total Residential Demand	21,748	23,918	27,172	28,031	28,031
<b>Total Low-income Households Demand</b>	<b>8,760</b>	<b>9,634</b>	<b>10,945</b>	<b>11,291</b>	<b>11,291</b>
SF Residential Demand - Total	18,617	20,499	23,599	24,458	24,458
<b>SF Residential Demand - Low-income Households</b>	<b>7,499</b>	<b>8,257</b>	<b>9,506</b>	<b>9,852</b>	<b>9,852</b>
MF Residential Demand - Total	3,130	3,419	3,573	3,573	3,573
<b>MF Residential Demand - Low-income Households</b>	<b>1,261</b>	<b>1,377</b>	<b>1,439</b>	<b>1,439</b>	<b>1,439</b>

It is important to note that the percentages of low income household by city provided by RHNA represent “targeted” and not actual percentages of existing low-income households. The actual percentage of existing low-income households is likely to be lower than the targeted percentage.

## 3. Water Sources and Supply Reliability

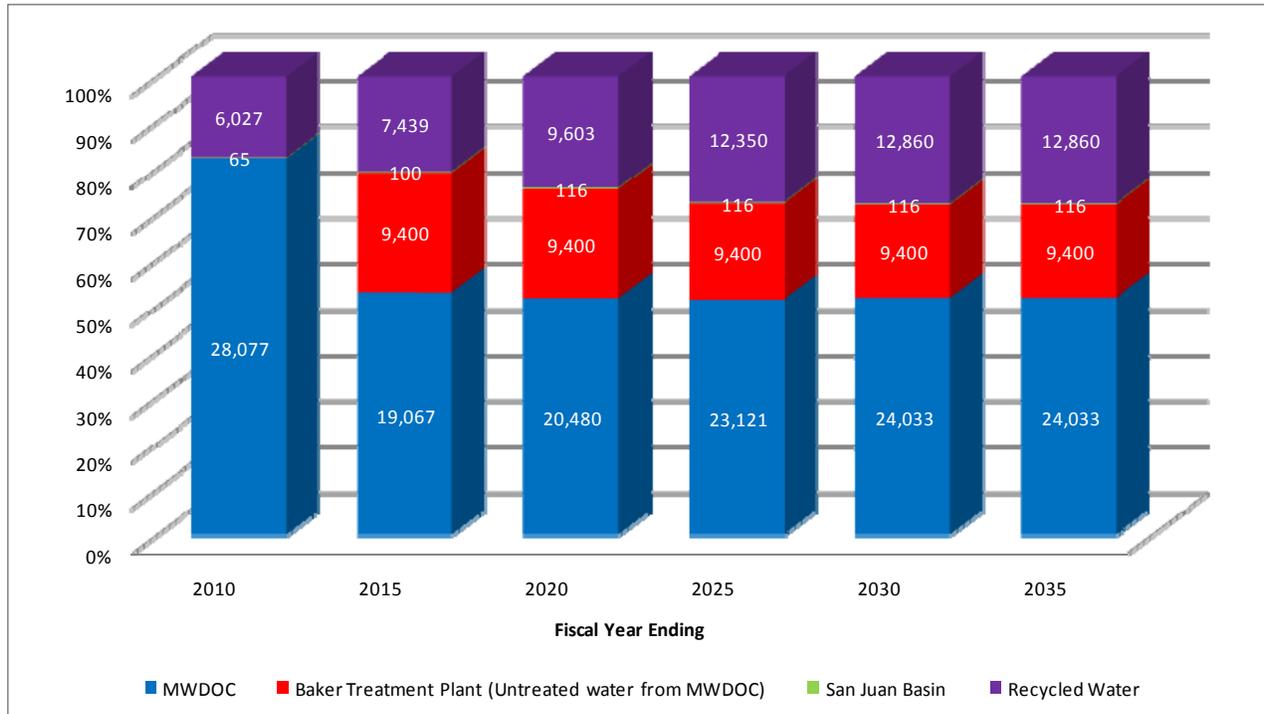
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### 3.1. Overview

SMWD's main source of water supply is imported water from Metropolitan through purchases from MWDOC. Imported water is supplemented by recycled water and minor local groundwater supply from the San Juan Basin. Today, SMWD relies on approximately 82% imported water, 18% recycled water, and 0.2% local groundwater. The water supply mix is expected to shift more towards recycled water by 2015 as a result of the Chiquita WRP expansions. The two-phase expansion would add an additional 3,000 AFY of recycled water by 2015 and another 2,000 AFY by 2025. Another new source of supply expected by 2015 is potable water from the Baker WTP which SMWD has a capacity right of 9,400 AFY. By 2015, SMWD's water supply portfolio is expected to shift to 50% imported treated water, 20% potable water from Baker WTP from untreated imported water, 30% recycled water, and 0.3% local groundwater. Local groundwater from the San Juan Basin is a minor source of supply to SMWD's service area and is expected to remain so at around 100 AFY.

SMWD works together with two primary agencies, Metropolitan, and MWDOC, to ensure a safe and high quality water supply, which will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The imported water supply numbers shown here represent only the amount of supplies projected to meet demands and not the full supply capacity.

Figure 3-1 depicts SMWD's current and projected water supplies through 2035.



**Figure 3-1: Current and Projected Water Supplies (AFY)**

The following sections provide a detailed discussion of SMWD’s water sources as well as projections to SMWD’s future water supply portfolio for the next 25 years. Additionally, SMWD’s projected supply and demand under various hydrological conditions are compared to determine SMWD’s supply reliability for the 25 year planning horizon. This section satisfies the requirements of § 10631 (b) and (c), and 10635 of the Water Code.

### 3.2. Imported Water

SMWD currently relies heavily on imported water wholesaled by Metropolitan through MWD OC. In 09-2010, SMWD purchased approximately 28,077 AFY of imported water representing 82% of SMWD’s total water supply. Metropolitan’s principal sources of water originate from two sources - the Colorado River via the Colorado Aqueduct and the Lake Oroville watershed in Northern California through the State Water Project (SWP). This water is treated at the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the Metropolitan Lower Feeder and SWP water through the Yorba Linda Feeder.

SMWD is connected to the Allen-McColloch Pipeline and the East Orange County Feeder No.2 which deliver domestic water. For non-potable water, SMWD has capacity

in the Baker Pipeline which delivers untreated imported water, operated by the Santiago Aqueduct Commission (a joint exercise of powers agency which includes SMWD), and the Irvine Lake Pipeline operated by Irvine Ranch Water District connected to Irvine Lake. SMWD is not currently directly connected to either the Baker or Irvine Lake Pipelines. Each of these facilities, along with entitlements or contracts to receive water from these facilities, is discussed below.

### **Allen-McColloch Pipeline**

The Allen-McColloch Pipeline (AMP) is SMWD's primary source of domestic water in which SMWD owns specified capacity rights for the delivery of water. The AMP is connected to the South County Pipeline (SCP), which is jointly owned on the basis of capacity allocation, by SMWD and Metropolitan. The SCP traverses the SMWD service area from north to south and passes through the area encompassed by The Ranch Plan. Additionally, SMWD has a connection to the AMP in Mission Viejo near the El Toro Reservoir. Metropolitan owns and operates the AMP. SMWD's AMP capacity ownership, expressed as rate of flow, is 139.19 cfs.

The Agreement for Sale and Purchase of Allen-McColloch Pipeline (Metropolitan Agreement No. 4623) among Metropolitan, MWDOC, MWDOC Water Facilities Corporation and certain other identified participants, including SMWD, dated July 1, 1994 (the AMP Sale Agreement) requires Metropolitan, among other things, to meet SMWD's requests for water deliveries (subject to the availability of water from Metropolitan). The AMP Sale Agreement further requires Metropolitan to augment/increase capacity necessary to meet SMWD's projected ultimate service area water demands, which includes The Ranch Plan and other undeveloped lands within SMWD.

### **East Orange County Feeder No.2**

The East Orange County Feeder #2 (EOCF #2) is a pipeline jointly owned by several local agencies and Metropolitan. SMWD has 14 cubic feet per second (cfs), or 10,000 acre-feet per year of capacity rights in the EOCF #2 per the agreement entitled "1970 Agreement Municipal Water District of Orange County and SMWD," dated December 4, 1970. Water is delivered through the Aufdenkamp Transmission Main to SMWD's Plaza Pump Station.

The EOCF #2 is considered a back-up system to the AMP and is currently used intermittently for facilities' maintenance purposes. Approximately 1,100 acre-feet of water per year is deliverable through this system as necessary to augment or replace deliveries, to the extent of capacity limitations, through the AMP.

SMWD's capacity rights in the EOCF #2, and connecting local facilities, enable SMWD to receive water from sources including agencies located within the Orange County Water District (OCWD) service area. The delivery and method of delivery (i.e., direct delivery or exchange) of such water is likely to occur under dry year(s) conditions or emergencies and will be subject to agreements or understandings involving MWDOC, OCWD and its member agencies and IRWD.

### **Baker Pipeline and Baker Water Treatment Plant**

The Baker Pipeline conveys untreated water via a connection to Metropolitan's raw (untreated) water feeder system. SMWD owns capacity in the pipeline pursuant to Santiago Aqueduct Commission Joint Powers Authority Agreement dated September 1961 and as amended, but does not currently have a direct connection. Trabuco Canyon Water District (TCWD) also has capacity and owns and operates a water treatment plant to produce domestic water. By agreement, SMWD can purchase up to 2,000 acre-feet per year from TCWD. This is included in the Metropolitan imported water supply for purposes of this UWMP.

This is considered a back-up system for reliability purposes. Additionally, in an emergency the Baker Pipeline can be converted to domestic use as it was in recent years, and used to deliver water to the South County Pipeline during the repairs to the AMP.

The Baker Pipeline Regional Water Treatment Plant will be a new 25 million gallon day plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago Lateral and Irvine Lake through the Baker Pipeline. The proposed project would provide increased water supply reliability to southern Orange County by providing treated water to customers of IRWD, El Toro Water District (ETWD), Mouton Niguel Water District, SMWD and Trabuco Canyon Water District. It will also help provide a reliable local potable water supply in the event of emergency conditions or scheduled maintenance on the Metropolitan delivery system (Diemer Filtration Plant, Lower Feeder Pipeline or Allen-McColloch Pipeline).

The Baker Water Treatment Plant is expected to come online in FY 2012-13. SMWD has a capacity right of 9,400 AFY.

#### **3.2.1. Metropolitan's 2010 Regional Urban Water Management Plan**

Metropolitan's 2010 Regional Urban Water Management Plan (RUWMP) reports on its water reliability and identifies projected supplies to meet the long-term demand within its service area. It presents Metropolitan's supply capacities from 2015 through 2035 under the three hydrologic conditions specified in the Act: single dry-year, multiple dry-years, and average year.

## **Colorado River Supplies**

Colorado River Aqueduct supplies include supplies that would result from existing and committed programs and from implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies to urban uses. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

## **State Water Project Supplies**

Metropolitan's State Water Project (SWP) supplies have been impacted in recent years by restrictions on SWP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service and National Marine Fishery Service issued on December 15, 2008 and June 4, 2009, respectively. In dry, below-normal conditions, Metropolitan has increased the supplies received from the California Aqueduct by developing flexible Central Valley/SWP storage and transfer programs. The goal of the storage/transfer programs is to develop additional dry-year supplies that can be conveyed through the available Banks pumping capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions.

In June 2007, Metropolitan's Board approved a Delta Action Plan that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the environment. The Delta action plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Bay-Delta while the long-term solution is implemented.

State and federal resource agencies and various environmental and water user entities are currently engaged in the development of the Bay Delta Conservation Plan (BDCP), which is aimed at addressing the basic elements that include the Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development. In evaluating the supply capabilities for the 2010 RUWMP, Metropolitan assumed a new Delta conveyance is fully operational by 2022 that would return supply reliability similar to 2005 condition, prior to supply restrictions imposed due to the Biological Opinions.

## **Storage**

Storage is a major component of Metropolitan's dry year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. In developing the supply capabilities for the 2010 RUWMP,

Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands.

### **Supply Reliability**

Metropolitan evaluated supply reliability by projecting supply and demand conditions for the single- and multi-year drought cases based on conditions affecting the SWP (Metropolitan's largest and most variable supply). For this supply source, the single driest-year was 1977 and the three-year dry period was 1990-1992. Metropolitan's analyses are illustrated in Tables 3-1, 3-2, and 3-3 which correspond to Metropolitan's 2010 RUWMP's Tables 2-11, 2-9 and 2-10, respectively. These tables show that the region can provide reliable water supplies not only under normal conditions but also under both the single driest year and the multiple dry year hydrologies.

**Table 3-1: Metropolitan Average Year Projected Supply Capability and Demands for 2015 to 2035**

Forecast Year	2015	2020	2025	2030	2035
<b>Average Year Supply Capability<sup>1</sup> and Projected Demands Average of 1922-2004 Hydrologies (acre-feet per year)</b>					
<b>Current Programs</b>					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct <sup>2</sup>	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>3,485,000</b>	<b>3,810,000</b>	<b>4,089,000</b>	<b>3,947,000</b>	<b>3,814,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,006,000</b>	<b>1,933,000</b>	<b>1,985,000</b>	<b>2,049,000</b>	<b>2,106,000</b>
<b>Surplus</b>	<b>1,479,000</b>	<b>1,877,000</b>	<b>2,104,000</b>	<b>1,898,000</b>	<b>1,708,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>588,000</b>	<b>689,000</b>	<b>1,051,000</b>	<b>1,051,000</b>	<b>1,051,000</b>
<b>Potential Surplus</b>	<b>2,067,000</b>	<b>2,566,000</b>	<b>3,155,000</b>	<b>2,949,000</b>	<b>2,759,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

**Table 3-2: Metropolitan Single-Dry Year Projected Supply Capability and Demands for 2015 to 2035**

**Single Dry-Year  
Supply Capability<sup>1</sup> and Projected Demands  
Repeat of 1977 Hydrology  
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
<b>Current Programs</b>					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct <sup>2</sup>	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>2,457,000</b>	<b>2,782,000</b>	<b>2,977,000</b>	<b>2,823,000</b>	<b>2,690,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,171,000</b>	<b>2,162,000</b>	<b>2,201,000</b>	<b>2,254,000</b>	<b>2,319,000</b>
<b>Surplus</b>	<b>286,000</b>	<b>620,000</b>	<b>776,000</b>	<b>569,000</b>	<b>371,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>762,000</b>	<b>862,000</b>	<b>1,036,000</b>	<b>1,036,000</b>	<b>1,036,000</b>
<b>Potential Surplus</b>	<b>1,048,000</b>	<b>1,482,000</b>	<b>1,812,000</b>	<b>1,605,000</b>	<b>1,407,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

**Table 3-3: Metropolitan Multiple-Dry Year Projected Supply Capability and Demands for 2015 to 2035**

**Multiple Dry-Year  
Supply Capability<sup>1</sup> and Projected Demands  
Repeat of 1990-1992 Hydrology  
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
<b>Current Programs</b>					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct <sup>2</sup>	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit <sup>4</sup>	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
<b>Capability of Current Programs</b>	<b>2,248,000</b>	<b>2,417,000</b>	<b>2,520,000</b>	<b>2,459,000</b>	<b>2,415,000</b>
<b>Demands</b>					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
<b>Total Demands on Metropolitan<sup>5</sup></b>	<b>2,236,000</b>	<b>2,188,000</b>	<b>2,283,000</b>	<b>2,339,000</b>	<b>2,399,000</b>
<b>Surplus</b>	<b>12,000</b>	<b>229,000</b>	<b>237,000</b>	<b>120,000</b>	<b>16,000</b>
<b>Programs Under Development</b>					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply <sup>3</sup>	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit <sup>4</sup>	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
<b>Capability of Proposed Programs</b>	<b>404,000</b>	<b>553,000</b>	<b>733,000</b>	<b>755,000</b>	<b>755,000</b>
<b>Potential Surplus</b>	<b>416,000</b>	<b>782,000</b>	<b>970,000</b>	<b>875,000</b>	<b>771,000</b>

<sup>1</sup> Represents Supply Capability for resource programs under listed year type.

<sup>2</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct.

<sup>3</sup> Colorado River Aqueduct includes water management programs, IID-SDCWA transfers and canal linings conveyed by the aqueduct.

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including IID-SDCWA transfers and canal linings.

<sup>5</sup> Firm demands are adjusted to include IID-SDCWA transfers and canal linings. These supplies are calculated as local supply, but need to be shown for the purposes of CRA capacity limit calculations without double counting.

### 3.2.2. SMWD’s Imported Water Supply Projections

Based on Metropolitan’s supply projections that it will be able to meet full service demands under all three hydrologic scenarios, MWDOC, Orange county’s wholesale supplier projects that it would also be able to meet the demands of its retail agencies under these conditions.

California Water Code section 10631 (k) requires the wholesale agency to provide information to the urban retail water supplier for inclusion in its UWMP that identifies and quantifies the existing and planned sources of water available from the wholesale agency. Table 3-4 indicates the wholesaler’s water availability projections by source for the next 25 years as provided to SMWD by MWDOC. The water supply projections shown in Table 3-4 represent the amount of supplies projected to meet demands. They do not represent the full supply capacity.

**Table 3-4: Wholesaler Identified & Quantified Existing and Planned Sources of Water (AFY)**

Wholesaler Sources	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	28,467	29,880	32,521	33,433	33,433

### 3.3. Groundwater

SMWD has limited access to groundwater supply. SMWD relies on approximately 100 acre-feet per year of groundwater from the San Juan Basin to provide service on a contract basis to the Nichols Institute. This local source of supply meets only 0.2% of SMWD’s total annual demand. SMWD currently has one operating well, Well 6, which is located in the southeast corner of SMWD.

The San Juan Basin is managed by the San Juan Basin Authority (SJBA), a joint powers authority created in 1971 for the purpose of carrying out water resources development of the San Juan Basin. The members of the SJBA include the City of San Juan Capistrano, Moulton Niguel Water District, SMWD, and South Coast Water District<sup>4</sup>.

#### 3.3.1. San Juan Groundwater Basin

The San Juan Watershed is bounded on the west by the Pacific Ocean and otherwise by tertiary semi-permeable marine deposits. San Juan Watershed includes San Juan Creek, Oso Creek, Trabuco Creek, Canada Gobernadora and Bell Canyon.

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<sup>4</sup><http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/groundwater/PDFs/OrangeCountyBasins/SanJuanBasin.pdf>

The primary water-bearing unit within the Basin is Quaternary alluvium. This alluvium ranges from a heterogeneous mixture of sand, silt, and gravel in the eastern portion of the basin, to coarse sand near the center, to fine-grained lagoonal sediments in the western portion of the basin. Thickness of the alluvium averages about 65 feet and may reach more than 125 feet. Specific yield of the alluvium is estimated to average about 13 percent and range from 3 to 22 percent. Wells typically yield from 450 to 1,000 gallons per minute (gpm). Sand layers of the Tertiary Santiago Formation may be water bearing within the region and beneath the basin, and minor amounts of water are extracted from fractured basement rock beneath the basin.

At the confluence of San Juan Creek and Canada Chiquita, near the middle portion of the basin, the Cristianitos fault forms a barrier to subsurface outflow. The Forster, Mission Viejo and Aliso faults are not known to form barriers to groundwater flow, but they are mapped as crossing the basin. Recharge of the lower Watershed is from flow in San Juan Creek, Oso Creek, and Trabuco Creek and precipitation to the valley floor. Water from springs flows directly from Hot Spring Canyon into San Juan Creek, adding to recharge in the upper watershed.

Groundwater levels in 1987 were similar to water levels in 1952. Hydrographs show seasonal cycles with average declines related to drought cycles that recover during more plentiful seasons. Groundwater flows southwest toward the Pacific Ocean. The total storage capacity has been estimated to be 90,000 AF.

### **3.3.2. San Juan Basin Management**

Local supplies are urban run-off surface flow diversions comprised of the Oso Creek Barrier, Canada Gobernadora and Arroyo Trabuco. SMWD overlies the San Juan Creek watershed. The State Water Resources Control Board (SWRCB) has determined the watershed is not a groundwater basin, but a surface and underground flowing stream and, therefore, it is subject to SWRCB jurisdiction and its processes with respect to the appropriation and use of waters within the watershed. SMWD is a member of the San Juan Basin Authority (SJBA) a joint powers agency, formed to manage the watershed. Other member agencies include the City of San Juan Capistrano, Moulton Niguel Water District and South Coast Water District. SJBA has SWRCB Permit for Diversion and Use of Water Permit No. 21074 for appropriation and diversion of up to 8,026 acre-feet per year, with the ability to increase to 10,702 acre-feet of water per year upon demonstration of sufficient availability of unappropriated water.

As a member of the SJBA, SMWD is entitled to participate in the development of projects to appropriate and divert water from the San Juan Watershed. Additionally, return imported flows, defined as water imported by the SMWD from outside the drainage basin (water purchased from Metropolitan) used within the basin can be collected by SMWD for re-use.

**Table 3-5: Groundwater Rights (AFY)**

Basin Name	Water Rights (AFY)
San Juan Groundwater Basin (per Agreement with Nichols Institute)	150
<b>Total</b>	<b>150</b>

*The San Juan Basin Groundwater Management and Facility Plan* by NBS Lowry (1994) investigated and modeled the groundwater basin for 1979 through 1990. The study determined that the mean pump extraction capacity was 5,621 AF/Yr and a mean subsurface inflow was 2,246 AF Yr. Average subsurface outflow to the ocean was estimated to be about 450 AF/Yr.

In 1998, Stetson Engineers and Boyle Engineering Corporation prepared a study titled *Availability of Unappropriated Water San Juan Creek Basin for the SJBA*. The study concluded the following available unappropriated water which could be reliably extracted by the study subject projects in addition to existing (historic) pumping:

Base Period (1969/70-1991/92)	<i>8,000 AF/year</i>
Current	<i>11,100 AF/year</i>
Project Ultimate	<i>14,100 AF/year</i>

The study identified the above rates of withdrawal could be sustained indefinitely, assuming a repeat of the base period hydrological conditions. The Nichols Institute pumping is included under the historic pumping by the Rancho Mission Viejo.

### 3.3.3. Historical Groundwater Production

Table 3-6 provides historical pumping data for the groundwater basin in the past five years. Local groundwater accounted for only about 0.2 percent of SMWD’s total supply. SMWD’s groundwater production has been limited by the well’s pumping capacity.

**Table 3-6: Amount of Groundwater Pumped in the Past 5 Years (AFY)**

Basin Name(s)	Fiscal Year Ending				
	2005	2006	2007	2008	2009
San Juan Basin	90	71	78	65	73
<b>% of Total Water Supply</b>	<b>0.3%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>0.2%</b>

### 3.3.4. Projections of Groundwater Production

Annual groundwater extractions are currently 65 AFY and are anticipated to increase to 116 AFY by 2015 with development at the Nichols Institute and will represent 0.3% of

SMWD's total water supply. Table 3-7 shows the amount of groundwater production SMWD expects to produce from the San Juan Basin in the next 25 years.

**Table 3-7: Amount of Groundwater Projected to be Pumped (AFY)**

Basin Name(s)	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
San Juan Basin	65	100	116	116	116	116
<b>% of Total Water Supply</b>	<b>0.2%</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.3%</b>	<b>0.2%</b>	<b>0.2%</b>

### 3.4. Supplemental Dry Year Supplies

#### Chino Groundwater Basin

This section includes groundwater information relative to SMWD's supplemental dry year(s) water supplies referenced hereinabove which are currently available pursuant to separate agreements with Cucamonga Valley Water District (CVWD) and Golden State Water Company (GSWC) entered into on March 25, 2003, and December 28, 2001, respectively. Both of these water supplies are located in and involve the Chino Groundwater Basin (the Chino Basin).

The CVWD and GSWC agreements specifically earmark reserved and stored water supplies, respectively, for SMWD supplemental dry year(s) purposes and enable the availability of such water to SMWD through an exchange process whereby they will increase groundwater production in-lieu of otherwise directly or indirectly receiving imported water from Metropolitan.

#### **Description of Chino Basin and Amount of Water CVWD and GSWC Have Legal Right to Pump Under Chino Basin Adjudication**

CVWD and GSWC produce water from the Chino Basin which was adjudicated by the Superior Court of the State of California for the County of San Bernardino on January 27, 1978 (the Judgment). A copy of the Judgment and Court-approved amendments thereto is available at SMWD.

The Chino Basin consists of approximately 235 square miles in the upper Santa Ana River Watershed. While still considered a single basin for hydrologic purposes, the Chino Basin is divided into five management zones, based on similar hydrologic conditions, and three sub-basins. The Chino Basin stores approximately five (5) million acre-feet of groundwater with the capability of storing an additional one (1) million acre-feet.

The Judgment represents a plenary adjudication of all water rights in the Chino Basin and is currently administered under the authority of the Chino Basin Watermaster with continuing jurisdiction by the Court. The principal function of an adjudication generally is to control the use of a water source in order to ensure the source is utilized in an optimum manner. For purposes of an adjudication, the central feature is the determination of the safe yield of the Chino Basin.

The safe yield of a groundwater basin has been defined as the amount of water that can be withdrawn annually without producing an undesirable result. Withdrawal in excess of safe yield is termed overdraft. The Judgment established the safe yield of the Chino Basin in the amount of 140,000 acre-feet per year, however, Watermaster may determine that the operating safe yield can be higher from year-to-year depending on factors including favorable precipitation and management efforts that maximize the beneficial use of all water supplies in the Chino Basin. These management efforts, which ensure the long-term sufficiency of groundwater from the Chino Basin, including during dry years, are addressed below.

The Judgment does not place any limits upon the groundwater production by any party to the Judgment, which includes CVWD and GSWC. Parties are permitted to pump in accordance with the rights described by the Judgment.

The Judgment allocates safe yield of the Chino Basin according to the three pools as described in Paragraph 13 of the Judgment. The members of each pool are then enjoined from producing water from the Chino Basin in excess of such allocated amount "except pursuant to the provisions of the Physical Solution" (Judgment, Paragraph 13(a)-(c)).

The Physical Solution of the Judgment is described in broad terms by Paragraphs 39 through 57 of the Judgment. Paragraph 45 provides Watermaster with the authority to levy and collect assessments for the purchase of water necessary to balance the production by any party in excess of that party's allocated share of safe yield of the Basin. Paragraphs 49 and 50 describe the sources of water which are authorized to function as sources of replenishment water and the methods by which water can be replenished to the Basin. Exhibit "H," Paragraph 7, of the Judgment describes the way in which costs for replenishment water will be spread among the members of the Appropriative Pool, which includes CVWD and GSWC.

The afore-cited paragraphs of the Judgment evince a clear expectation that parties, including CVWD and GSWC, would produce water in excess of their adjudicated production rights. The injunction in Paragraph 13 of the Judgment should thus be interpreted to mean that parties are enjoined from producing water in excess of their adjudicated rights except to the extent that they will pay a replenishment assessment upon production exceeding a specified amount.

The ability to produce water from the Chino Basin is accordingly not a matter of availability, as contemplated and sanctioned by the Judgment for the reasons discussed above, but rather a matter of cost. Water produced in excess of production rights will cost more than water produced within a party's production rights. Thus, the quantity and reliability of water supplies for purposes of this UWMP is a matter of the cost of the water produced from the Chino Basin rather than limitations on production which may otherwise operate to reduce the sufficiency of the groundwater supply.

CVWD and GSWC have the right pursuant to Paragraph 12 of the Judgment to store supplemental water through written agreement with Watermaster, with the allocation of storage capacity subject to the needs and requirements of overlying users and owners of rights in the safe yield or operating safe yield having priority and preference over storage for export. CVWD's and GSWC's existing stored water is held pursuant to Local Storage Agreements with Watermaster and is included within the cumulative Local Storage limit of 50,000 acre-feet for all parties to the Judgment. Therefore, the right to produce water is not restricted to the extent water which CVWD and/or GSWC may produce in connection with the agreements with SMWD is considered stored water or stored water for export.

Whether the water is characterized as reserved or stored, does not affect its availability for CVWD's or GSWC's production for purposes of the agreements with SMWD since both parties, as discussed above, have rights to produce water pursuant to the Judgment and promulgating agreements and programs. Such characterization, therefore, may only be important with respect to whether the water is subject to a replenishment obligation and not CVWD's or GSWC's right to pump the water.

**Detailed Description and Analysis of the Amount and Location of Groundwater Pumped for the Past Five Years by Cucamonga County Water District and Projected to be Pumped by Cucamonga County Water District Through 2035**

CVWD pumps groundwater from the Cucamonga and Chino basins, both of which are adjudicated. The following table is a summary of the historical and the projected production from both basins:

**Table 3-8: Cucamonga Valley Water District Historical and Projected Groundwater Supplies**

Year	Acre-Feet
2001	13,493
2002	17,299
2003	15,071
2004	19,296
2005	20,846
2006	23,311
2007	21,801
2008	23,682
2009	29,901
2010	23,679
2015	38,832
2020	37,219
2025	37,319
2030	38,319
2035	38,919

The Chino Basin is the predominant source of groundwater with the production being more than 2/3, of the total groundwater pumped by CVWD.

**Detailed Description and Analysis of the Amount and Location of Groundwater Pumped for the Past Five Years by Golden State Water Company and Projected to be Pumped by Golden State Water Company through 2025**

GSWC has a single well within the Chino Basin and an annual appropriative right, exclusive of Agricultural Pool transfers, of approximately 411 AF. Agricultural Pool transfers provide an additional amount of water to GSWC of approximately 200 acre-feet per year, accumulated amounts of which may be sold from time-to-time.

**Sufficiency of the Groundwater from the Chino Basin**

CVWD's and GSWC's legal right to pump water in an amount necessary to meet all demands as sanctioned and protected by the Judgment as discussed above, including for purposes of the agreements with SMWD addressed in this UWMP, is buttressed by a number of programs and projects directed to ensuring the sufficiency of groundwater supplies from the Chino Basin, particularly during dry years. An adjudicated water right has perhaps the most substantial indicia of reliability of any water right that currently exists in California. An adjudicated right is based upon long-term studies whose purpose is to protect the long-term functionality of the water source. These rights are coordinated

in an established and binding manner with all the other users of the Chino Basin and are overseen by Watermaster which has the authority to mandate and proscribe activities whose purpose is to protect the water source and maximize its long-term beneficial use. Chino Basin management activities include objectives, projects and programs identified in the Peace Agreement, entered into between Judgment parties on June 29, 2000, which are more specifically described in the Optimum Basin Management Program (OBMP) that implements the provisions of the Peace Agreement. All Watermaster processes are governed by Rules and Regulations and receive active oversight from the Court which, as noted above, retains continuing jurisdiction over the administration of the Judgment. Consequently, the sufficiency of the groundwater is not only directed by rigorous Watermaster management processes, but validated and ensured by continuing Court oversight.

OBMP projects directed to ensuring the maximization of safe yield and operating safe yield of the Chino Basin include: 1) a comprehensive monitoring program; 2) a comprehensive recharge program; 3) development and implementation of a water supply plan for impaired areas of the Chino Basin; 4) development and implementation of a comprehensive groundwater management plan for Management Zone I; 5) development and implementation of a regional supplemental water program; 6) development and implementation of cooperative programs with the Regional Water Quality Control Board and other agencies to improve Chino Basin management; 7) development and implementation of a salt management program; 8) development and implementation of a groundwater storage program; and 9) development and implementation of storage and recovery programs.

The referenced elements of the OBMP collectively comprise a comprehensive regimen directed to ensuring and maximizing the long-term beneficial use of water in the Chino Basin. The OBMP Program Elements are collectively directed to ensuring the sufficiency of Chino Basin groundwater supplies, particularly during dry years, and comprehensively address water quality and quantity, thus maximizing beneficial use over the long-term. The Inland Empire Utilities Agency (IEUA) Board of Directors approved and certified the overall OBMP Programmatic Environmental Impact Report in July 2000.

In conclusion, the sufficiency of groundwater from the Chino Basin is assured due to CVWD's and GSWC's legal right to produce water necessary to meet ultimate demands in conjunction with OBMP objectives. These OBMP objectives which are overseen and administered by the Chino Basin Watermaster specifically assure, under the auspices of continuing Court jurisdiction, the long-term production of water from the Chino Basin.

### **3.5. Recycled Water**

One of the major components of SMWD's water conservation program is its recycled water program. SMWD provides additional treatment to a portion of its secondary treated

wastewater, rather than discharging it to the ocean, and is used for landscape irrigation services. Demands continue to increase as new services are continually being connected to the recycled water system. SMWD’s recycled water program is more fully described in Section 6.

### 3.6. Supply Reliability

#### 3.6.1. Overview

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. SMWD depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. Development of groundwater, recycled water system, desalination opportunities, and collection of urban return flows augment the reliability of the imported water system. There are various factors that may impact reliability of supplies such as legal, environmental, water quality and climatic which are discussed below. The water supplies are projected to meet full-service demands; Metropolitan’s 2010 RUWMP finds that Metropolitan is able to meet with existing supplies, full-service demands of its member agencies starting 2015 through 2035 during normal years, single dry year, and multiple dry years.

Metropolitan’s 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The foundation of Metropolitan’s resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. MWDOC is reliant on Metropolitan for all of its imported water. With the addition of planned supplies under development, Metropolitan’s 2010 RUWMP finds that Metropolitan will be able to meet full-service demands from 2015 through 2035, even under a repeat of the worst drought. Table 3-9 shows the reliability of the wholesaler’s supply for single dry year and multiple dry year scenarios.

**Table 3-9: Wholesaler Supply Reliability - % of Normal AFY**

Wholesaler Sources	Single Dry	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
MWDOC	100%	100%	100%	100%

In addition to meeting full-service demands from 2015 through 2035, Metropolitan projects reserve and replenishment supplies to refill system storage. MWDOC’s 2010 RUWMP states that it will meet full-service demands to its customers from 2015 through 2035. Table 3-10 shows the basis of water year data used to predict drought supply availability.

**Table 3-10: Basis of Water Year Data**

Water Year Type	Base Year	Base Year	Base Year
Normal Water Year	Average 1922-2004		
Single-Dry Water Year	1977		
Multiple-Dry Water Years	1990	1991	1992

### 3.6.2. Factors Impacting Reliability

The Act requires a description of the reliability of the water supply and vulnerability to seasonal or climatic shortage. SMWD relies on import supplies provided by Metropolitan through MWDOC. The following are some of the factors identified by Metropolitan that may have an impact on the reliability of Metropolitan supplies.

***Environment*** – Endangered species protection needs in the Sacramento-San Joaquin River Delta have resulted in operational constraints to the SWP system. The Bay-Delta’s declining ecosystem caused by agricultural runoff, operation of water pumps and other factors has led to historical restrictions in SWP supply deliveries. SWP delivery restrictions due to the biological opinions resulted in the loss of about one-third of the available SWP supplies in 2008.

***Legal*** – Listings of additional species under the Endangered Species Act and new regulatory requirements could impact SWP operations by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations. Additionally, the Quantification Settlement Agreement has been challenged in courts and may have impacts on the Imperial Irrigation District and San Diego County Water Authority transfer. If there are negative impacts, San Diego could become more dependent on the Metropolitan supplies.

***Water Quality*** –Water imported from the Colorado River Aqueduct (CRA) contains high level of salts. The operational constraint is that this water needs to be blended with SWP supplies to meet the target salinity of 500 mg/L of total dissolved solids (TDS). Another water quality concern is related to the quagga mussel. Controlling the spread and impacts of quagga mussels within the Colorado River Aqueduct requires extensive maintenance and results in reduced operational flexibility.

**Climate Change** – Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. The areas of concern for California include the reduction in Sierra Nevada snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure.

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt, however, that climatic factors would have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however severe pattern changes may occur in the future. Table 3-11 shows the factors resulting in inconsistency of supply.

**Table 3-11: Factors Resulting in Inconsistency of Supply**

Name of Supply	Legal	Environmental	Water Quality	Climatic
State Water Project	X	X		
Colorado River			X	X

These and other factors are addressed in greater detail in Metropolitan’s 2010 RUWMP.

**3.6.2.1. Water Quality**

**Imported Water** - Metropolitan is responsible for providing water of a high quality throughout its service area. The water that Metropolitan delivers is tested both for currently regulated contaminants and for additional contaminants of concern as over 300,000 water quality tests are conducted each year to regulate the safety of its waters. Metropolitan’s supplies originate primarily from the Colorado River Aqueduct (CRA) and from the State Water Project (SWP). A blend of these two sources, proportional to each year’s availability of the source, is then delivered throughout Metropolitan’s service area.

Metropolitan’s primary sources face individual water quality issues of concern. The CRA water source contains a higher level of total dissolved solids (TDS) and a lower level of organic material while the SWP contains a lower TDS level while its level of organic materials is much higher, lending to the formation of disinfection byproducts. To remediate the CRA’s high level of salinity and the SWP’s high level of organic materials, Metropolitan has been blending CRA water with SWP supplies as well as implementing updated treatment processes to decrease the disinfection byproducts. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of emerging contaminants, N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan has assured its ability

to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources. While unforeseeable water quality issues could alter reliability, Metropolitan’s current strategies ensure the deliverability of high quality water.

**Groundwater** - Groundwater pumping from the San Juan Basin has declined over the years due to the poor water quality. The mineral content of groundwater in the basin is variable, however, the basin typically has calcium bicarbonate or bicarbonate-sulfate character below the upper reaches of the valleys, and calcium-sodium sulfate or sulfate-chloride near the coast. In general, TDS content in groundwater increases from below 500 mg/L in the upper reaches of the valley to near 2,000 mg/L near the coast. TDS content of water from 3 public supply wells averages 760 mg/L and ranges from 430 mg/L to 1,250 mg/L.

Table 3-12 shows the impact in acre-feet per year that water quality would have on supply.

**Table 3-12: Water Quality – Current and Projected Water Supply Impacts (AFY)**

Water Source	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Imported	0	0	0	0	0	0
Local	0	0	0	0	0	0

### 3.6.3. Normal-Year Reliability Comparison

SMWD has entitlements and/or written contracts to receive imported water from Metropolitan via the regional distribution system. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water supplies assumed in this section are available to SMWD from existing water transmission facilities. Table 3-13 shows supply and demand under normal year conditions. Water supplies are projected to be available from Metropolitan; however, it is not included here since projected supplies meet projected demands.

**Table 3-13: Projected Normal Water Supply and Demand (AFY)**

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
<b>Total Demand</b>	<b>36,006</b>	<b>39,599</b>	<b>44,987</b>	<b>46,409</b>	<b>46,409</b>
San Juan Basin	100	116	116	116	116
Recycled Water	7,439	9,603	12,350	12,860	12,860
Imported	28,467	29,880	32,521	33,433	33,433
<b>Total Supply</b>	<b>36,006</b>	<b>39,599</b>	<b>44,987</b>	<b>46,409</b>	<b>46,409</b>

### 3.6.4. Single Dry-Year Reliability Comparison

SMWD has documented that it is 100% reliable for single dry year demands from 2015 through 2035 with a demand increase of 8.8% using FY 2006-07 as the single dry-year. Table 3-14 compiles supply and demand projections for a single dry water year. The available imported supply is greater than shown; however, it is not included because all demands are met.

**Table 3-14: Projected Single-Dry Year Water Supply and Demand (AFY)**

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
<b>Total Demand</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
San Juan Basin	100	116	116	116	116
Recycled Water	7,439	9,603	12,350	12,860	12,860
Imported	30,519	32,137	35,085	36,078	36,078
<b>Total Supply</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>

### 3.6.5. Multiple Dry-Year Reliability Comparison

SMWD is capable of providing their customers all their demands with significant reserves in multiple dry years from 2015 through 2035 with a demand increase of 8.8% using FY 2006-07 as the multiple dry-years. This is true even if the demand projections were to be increased by a large margin. Table 3-15 shows supply and demand projections under multiple dry year conditions.

**Table 3-15: Projected Multiple Dry Year Period Supply and Demand (AFY)**

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
<b>First Year Supply</b>	<b>Total Demand</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
	San Juan Basin	100	116	116	116	116
	Recycled Water	7,439	9,603	12,350	12,860	12,860
	Imported	30,519	32,137	35,085	36,078	36,078
	<b>Total Supply</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
<b>Second Year Supply</b>	<b>Total Demand</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
	San Juan Basin	100	116	116	116	116
	Recycled Water	7,439	9,603	12,350	12,860	12,860
	Imported	30,519	32,137	35,085	36,078	36,078
	<b>Total Supply</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
<b>Third Year Supply</b>	<b>Total Demand</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>
	San Juan Basin	100	116	116	116	116
	Recycled Water	7,439	9,603	12,350	12,860	12,860
	Imported	30,519	32,137	35,085	36,078	36,078
	<b>Total Supply</b>	<b>38,058</b>	<b>41,856</b>	<b>47,551</b>	<b>49,054</b>	<b>49,054</b>

## 4. Demand Management Measures

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### 4.1. Overview

Water conservation, often called demand-side management, can be defined as practices, techniques, and technologies that improve the efficiency of water use. Such practices are referred to as demand management measures (DMM). Increased efficiency expands the use of the water resource, freeing up water supplies for other uses, such as population growth, new industry, and environmental conservation.

The increasing efforts in water conservation are spurred by a number of factors: growing competition for limited supplies, increasing costs and difficulties in developing new supplies, optimization of existing facilities, delay of capital investments in capacity expansion, and growing public support for the conservation of limited natural resources and adequate water supplies to preserve environmental integrity.

SMWD recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. While SMWD is not signatory to the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU), SMWD has committed and dedicates resources to implementing the 14 Best Management Practices (BMPs) the CUWCC has established. The CUWCC 14 BMPs correspond to the 14 DMMs under the UWMP Act.

This section of the UWMP satisfies the requirements of § 10631 (f) & (j). It describes how each DMM is being implemented by SMWD and how SMWD evaluates the effectiveness of the DMMs implemented. This section also provides an estimate of existing conservation savings where information is available.

### 4.2. Water Use Efficiency Programs

Conservation measures are undertaken as part of an overall comprehensive program throughout the SMWD service area directed to maximizing the availability of water for all customers while considering priorities of use by category (i.e. domestic; health and safety). SMWD is actively participating in many water conservation activities. A Water Conservation Ordinance was adopted by the Board of Directors in 2009 as Ordinance No. 09-07-02 Comprehensive Water Conservation Program.

As a member agency of MWDOC, SMWD actively participates in various Metropolitan residential and CII rebate programs, as well as school and public education and outreach

programs, and other programs administered by MWDOC. MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies. MWDOC’s 2010 RUWMP should be referred to for a detailed discussion of each regional BMP program. MWDOC’s current Water Use Efficiency Program, implemented on behalf of its member agencies follows three basic focuses:

1. Regional Program Development – MWDOC develops, obtains funding for, and implements regional BMP programs on behalf of all retail water agencies in Orange County.
2. Local Program Assistance - MWDOC assists retail agencies to develop and implement local programs within their individual service areas.
3. Research and Evaluation – MWDOC conducts research programs which allow an agency to measure the water savings benefits of a specific program and then compare those benefits to the costs of implementing the program in order to evaluate the economic feasibility of the program.

Table 4-1 provides an overview of SMWD’s DMM program status.

**Table 4-1: Urban Supplier’s Demand Management Measures Overview**

Demand Management Measure (DMM)	DMM Status		
	Past	Current	Future
Residential Water Surveys		X	
Residential Plumbing Retrofits		X	
System Water Audits, Leak Detection and Repair		X	
Metering with Commodity Rates		X	
Large Landscape Conservation Programs		X	
High-Efficiency Washing Machine Rebates		X	
Public Information Programs		X	
School Education Programs		X	
Commercial, Industrial and Institutional Programs		X	
Wholesale Agency Assistance		N/A	
Conservation Pricing		X	
Conservation Coordinator		X	
Water Waste Prohibition		X	
Residential ULFT Replacement Programs	X		

**4.2.1. DMM 1: Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers**

SMWD's total water demand includes up to 70% for irrigation purposes. A majority of the residential and commercial accounts in SMWD boundaries were constructed after the 1992 plumbing code changes which required "Low Flow" devices to be installed. Therefore, a majority of our conservation programs focus on efficient irrigation practices for both residential and commercial accounts.

**SMWD's Local Programs**

SMWD has developed and implemented a targeting/marketing strategy for single-family residential water use surveys by means of work order codes, meter reading codes, evaluating abnormal water bills, and consumption comparisons. These codes were implemented in 1995 and have been modified periodically to increase our efficiency within the conservation program.

Table 4-2 summarizes the residential audit program implemented by SMWD.

**Table 4-2: SMWD Residential Audit Program**

<b>Audit 1 (A1)</b>	<b><u>Developed By</u></b>	<b><u>Actions Taken</u></b>
	Billing Generated. Evaluated at the invoicing stage looking for abnormal consumption.	Verify the meter read. Leak Detection & Notification. Review landscape (moisture). Leave irrigation tips/schedule. Market irrigation training program.
<b>Audit 2 (A2)</b>	<b><u>Developed By</u></b>	<b><u>Actions Taken</u></b>
	Customer Generated	Verify the meter read. Leak Detection. Review landscape (moisture). Leave irrigation tips/schedule. Market irrigation training program.
<b>Audit 3 (A3)</b>	<b><u>Developed By</u></b>	<b><u>Actions Taken</u></b>
	Survey Targets single family customers with +50 units on their monthly water bills. This amount is lowered to 40 units in the Winter Months. It also focuses on Multi-family accounts using 20 units or more per month.	Review Consumption History. Site Visit. Re-read the Meter. Leak detection. Customer Contact. Review for Irrigation Run-off. Review irrigation coverage. Leave irrigation tips/suggestions. Market Training Program (HGW)

In addition, meter readers and field personnel assist customers with high consumption and leaks. They are tracked as:

- LD – Leak Detected
- LC – Leak Check
- OW – Over Watering
- ML – Meter Leak
- PC – Pressure Check
- FL – Flow Indicated

Each of these codes requires the field personnel to check for high consumption and notify the customer by means of personal contact or door hangers. SMWD staff also completes home audits when a Pressure Check (PC) is requested. A pressure check requires field personnel to obtain static and residual pressure at a customer's home and complete an A2 audit when necessary.

SMWD customers are provided information packets that include evaluation results and water saving recommendations.

Table 4-3 provides the number of residential audits conducted by SMWD by year between 2006 and 2010.

**Table 4-3: Number of Residential Audits Conducted by SMWD**

<b><u>Audits Single Family</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>Totals</u></b>
Audit 1	30	958	54	19	87	<b>285</b>
Audit 2	170	96	73	75	185	<b>599</b>
Audit 3	93	549	436	970	1,350	<b>3,398</b>
Pressure Check	166	187	141	70	46	<b>610</b>
Ordinance 1	1	0	0	135	416	<b>552</b>
Ordinance 2	0	0	0	44	398	<b>442</b>
<b><u>Totals</u></b>	<b>460</b>	<b>927</b>	<b>704</b>	<b>1,313</b>	<b>2,482</b>	<b>5,886</b>
<b><u>Audits Multi Family</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>Totals</u></b>
Audit 1	41	43	25	16	47	<b>172</b>
Audit 2	55	20	28	30	61	<b>194</b>
Audit 3	0	1	62	245	306	<b>614</b>
Pressure Check	38	34	36	23	12	<b>143</b>
Ordinance 1	0	0	0	111	203	<b>314</b>
Ordinance 2	0	0	0	34	167	<b>201</b>
<b><u>Totals</u></b>	<b>134</b>	<b>98</b>	<b>151</b>	<b>459</b>	<b>796</b>	<b>1,638</b>
<b><u>Other Work Orders</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>Totals</u></b>
Meter Leak	357	511	342	276	328	<b>1814</b>
<b><u>Reader Codes</u></b>	<b><u>2006</u></b>	<b><u>2007</u></b>	<b><u>2008</u></b>	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>Totals</u></b>
Leak Detected	161	32	21	28	68	<b>310</b>
Leak Check	17,242	7,926	13,412	10,399	13,142	<b>62,120</b>
Over Watering	4	10	559	138	169	<b>880</b>
Flow Indicated	451	781	791	651	865	<b>3,539</b>

**Ordinance Audits** - The “**Flow Indicated**” meter reader code (as of mid-FY 2009) automatically generates an **O1 (Ordinance Audit 1)** work order. These work orders require a site visit to determine if flow is continuing. If it is found that flow continues and can be determined to be a potential leak, contact will be made. At that time, the customer is notified of the possible leak condition along with the severity of the leak in gallons per day (gpd). They are also notified that the Conservation Ordinance requests they complete repairs as soon as possible but within seven days maximum. If a leak is determined, an **O2 (Ordinance Audit 2)** work order will be developed seven working days later to verify the leak has been repaired.

**Table 4-4: Number of Ordinance Audit Work Orders Generated**

	<b>FY 2009-10</b>	<b>FY 2010-11</b>	<b>Totals</b>
<b>Ordinance Audit 1</b>	452	833	<b>1285</b>
<b>Ordinance Audit 2</b>	182	796	<b>978</b>

SMWD estimated that since the implementation of the Ordinance Audit Program, 32.3 AF acre-feet was saved in FY 2009-10 and 112.8 acre-feet was saved in FY 2010-11. SMWD evaluates the effectiveness of its residential survey program by tracking the number of audits performed by audit class (A1, A2, A3), the number of ordinance audit work orders generated by audit class against the CUWCC BMP targets as described below. Estimated water savings is also used as a matrix to monitor program effectiveness.

**Single Family BMP Compliance**

The 15 percent target number has been reached on this BMP for the Single Family Leak Detection requirements. As indicated above in the single family data field, the A1, A2, A3, PC, O1 and O2 work orders, all require leak detection and notification as part of the site visit audits. Based on the standards, SMWD is required to complete 5347 leak detection surveys within 15 years. 5886 work orders have been completed in less than five years.

The 15 percent target number for Landscape Water Surveys will be reached and exceeded in this fiscal year. Based on the standards, SMWD is required to complete 5347 within 15 years. In less than five years, 4607 work orders have been completed. As part of the Audit 2, Audit 3 and Pressure Check work orders, SMWD also requires a landscape evaluation with irrigation schedule be completed in addition to leak detection.

**Multi Family BMP Compliance**

The 15 percent target number for Multi Family Leak Detection, associated with this BMP, will be reached in this fiscal year. As indicated above in the Single Family data field, the A1, A2, A3, PC, O1 and O2 work orders, all require leak detection and notification as part of the site visit audits. 1911 leak detection surveys are required within 15 years, SMWD has completed 1638 work orders in less than five years.

SMWD understands the requirement to maintain a program of high bill complaints (A1's) and not less than .0075 percent per year of single-family and multi-family dwellings for both leak detection and landscape surveys. SMWD will expect to exceed these requirements.

## **MWDOC's Regional Programs**

SMWD also participates in regional landscape programs aimed at helping residential and small commercial customers to be more water efficient through MWDOC including Smart Timer Rebate Program, Rotating Nozzle Rebate Program, Turf Removal Program, and the California Friendly Landscape Program as described below.

***Smart Timer Rebate Program*** - The Smart Timer Rebate Program started in FY 2004/05. Under this regional program, residential and small commercial properties are eligible for a rebate when they purchase and install a weather-based irrigation controller which has the potential to save 41 gallons per day per residence and reduce runoff and pollution by 49%. To date, 149 rebates have been given out to residential customers and 370 rebates to commercial customers within SMWD's service area which translate to a water savings of 760 acre-feet, collectively. SMWD will continue to provide on-site meetings, literature and incentives related to this program. As part of the MWDOC Grant for the Smart Timers a site audit and inspection is required and provided by contract through MWDOC.

**Please check the rebate numbers, MWDOC reported 3 rebates for residential in 2010 and none for commercial. Under DMM 5, you reported 15 for commercial.**

***Rotating Nozzle Rebate Program*** – This rebate program started in 2007 and is offered to both residential and commercial customers. Through this program, site owners will purchase and install rotary nozzles in existing irrigation systems. Following the submittal of a rebate application, water bill, and original purchase receipt, MWDOC will direct a third party installation verification contractor to perform installation verifications on up to 100% of the sites that installed devices. To date, within the SMWD's service area, 3,227 rotating nozzles have been installed at residential properties, 1,005 at small commercial properties, and 611 at large commercial landscapes representing a combined water savings of 81.5 acre-feet since the beginning of the program.

***Turf Removal Program*** – Started in FY 2007-08, this program is a partnership between MWDOC, Metropolitan, and local retail water agency. Through this program, residential and small commercial customers of participating retail water agencies are eligible to receive a minimum of \$1 per square foot of turf removed for qualifying projects. To date 64,354 sq. ft. of turf grass have been replaced by synthetic turf on residential properties translating to a water savings of 24.8 acre-feet for the SMWD service area.

***South County SmartScape: Landscape Improvement Incentive Program*** - MWDOC has obtained grant funding from the SWRCB and County of Orange to implement this Program. The purpose of the Program is to retrofit existing high water-using landscapes with 'fixes' that will reduce the site's outdoor water consumption in single-family homes and small commercial properties. This program is only offered to retail water agencies in

the South Orange County Integrated Regional Watershed Management Plan (SOCIRWMP) Area.

***California Friendly Landscape Training (Residential)*** - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The residential training program consists of either a half-day Mini Class or individual, topic-specific, four-hour classes.

#### **4.2.2. DMM 2: Residential Plumbing Retrofit**

The County of Orange has primacy over plumbing and building code enforcement within the unincorporated areas of SMWD. The Cities of Mission Viejo, Rancho Santa Margarita and San Clemente have jurisdiction within their regions. SMWD's Design Criteria and Standard Drawings references the Uniform Plumbing Code, which creates standards for plumbing fixture efficiency for fixtures such as showerheads and toilets.

***Plumbing Retrofit Saturation*** – SMWD participated in Metropolitan’s low flow showerhead distribution program which began in 1991. To determine whether or not the 75% saturation was achieved within Orange County, a saturation study was conducted by MWDOC and Metropolitan and completed in Fiscal Year 2001. Data was obtained through telephone surveys and on-site inspections. Although the hypothesis that the 75% saturation rate was strongly supported with a 95% confidence level, the study showed that the low flow shower head saturation rate for single family homes was determined to be 67% as of FY 2001. For multi-family, it showed a saturation of 60%. Per the MWDOC RUWMP, today low-flow showerhead saturation is estimated at nearly 100% and 94% saturation in single- and multi-family homes. As a result, Orange County and its water agencies, including SMWD, have reached the 75% saturation requirement for this BMP. No further low-flow showerhead distribution or installation activity has occurred.

#### **Estimated water savings from the showerhead distribution program?**

SMWD also participated in MWDOC’s regional ultra low flow toilet (ULFT) rebate program which ended in 2009. A total of 6,522 ULFTs were distributed under this program to single-family and multi-family homes representing a cumulative water savings of 2,569 acre-feet. The ULFT program has been replaced by the high efficiency toilets (HETs) rebate program. HETs are toilets which use 1.28 gallons per flush or less. The ULFT and HET rebate programs are discussed in more detail under Section 4.2.14.

#### **4.2.3. DMM 3: System Water Audits, Leak Detection and Repair**

##### **What year did the leak detection and water audit program start?**

SMWD has implemented the following system management programs:

- SMWD has virtually a 100% metered system.
- Perform a system wide annual water audit to determine system loss.
- All distribution system water meters 4 inches and larger receive a complete maintenance and calibration once every 24 months, or as necessary to assure accuracy.
- Efficiency of pump units is checked once every 48 months.
- Perform random check of accuracy of meters 3 inches and smaller every three years. Meter accuracy is checked monthly by means of consumption comparisons between prior months and prior years.
- All metallic pipes have electrolysis test stations and cathodic protection.
- Prepare monthly report on each non-domestic service showing amount of water used bimonthly for prior year.
- Exercise each valve in system once every 48 months.

The testing of our ¾" and 2" meters has shown excellent accuracy from low flow to high flow ranges for meters from 10 years to 30 years of age. SMWD's change out program is based on this data.

**Table 4-5: Number of Meter Exchanged Completed between 2006 and 2010**

Year	2006	2007	2008	2009	2010	Total
<b>Meter Exchanges Completed</b>	1,556	1,482	1,558	1,342	747	6,685

SMWD has implemented the following distribution system management programs:

- All metallic pipes have electrolysis test stations and cathodic protection.
- Efficiency of pump units is checked once every 48 months.
- Exercise each valve in system once every 24 months.

Table 4-6 provides a breakdown of SMWD's distribution system water audits performed in the last five years.

**Table 4-6: SMWD System Water Audits Performed between 2006 and 2010**

<b>Actual System Water Audits</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Average % of Unaccounted Water	6.88%	7.81%	8.01%	3.99%	4.96%
Miles of Distribution Lines Surveyed	45	90	100	100	125
Miles of Line Repaired	<1	<1	<1	<1	<1
Actual Expenditures [1]	\$137,400	\$145,000	\$350,965	\$170,195	\$285,222

[1] Actual expenditure calculated based on percentage of water distribution salaries and maintenance repair costs.

SMWD has not developed a formal methodology to estimate the water savings attributable to this DMM. There are, however, real water savings as a result of the proactive water audit, leak detections and repair program which maintains an acceptable non-revenue water of below 9%.

#### **4.2.4. DMM 4: Metering with Commodity Rates**

SMWD requires all new water connections to be metered. All 58,600 of SMWD connections are metered. SMWD charges customers by volume of use based on unit prices per billing unit of 100 cubic feet. SMWD promotes the use of dedicated landscape meters for commercial facilities. Since wastewater charges are based on metered water usage, there is a financial incentive for customers to separately meter interior uses and landscape.

There is no formal evaluation to determine the efficacy of this DMM. However, metering of all connections and billing by volume of use provide an incentive for customers to become more aware of their water use.

#### **4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives**

SMWD actively provides assistance with development of conservation based irrigation programs in the service area through the Landscape Performance Program created by MWDOC and its member agencies.

***Landscape Performance Program*** – Started in 2001, this program helps create site specific water budgets and track monthly water use for each participating site. SMWD provides monthly web-based Irrigation Performance Reports for accounts with irrigation budgets. SMWD is involved with a unique and innovative partnership linking landscape water management, green material management and non-point source pollution prevention goals of separate agencies into one program. This program is designed to:

- Assist water agencies to meet the landscape irrigation management requirements of the CUWCC BMP5.
- Assist cities and the County of Orange to meet Integrated Waste Management Act goals (AB 979) to reduce the volume of green waste entering local landfills and to recycle those organic materials as mulch for the benefit of the landscape.
- Assist cities and the County of Orange with AB1881 to identify landscape run-off sites and to provide recommendations to minimize run-off.
- Have 90% of the dedicated irrigation meters in the program by 2015.

Technical training sessions are designed to help both the landscape contractor and the property manager evaluate water consumption on dedicated irrigation meters and manage sites efficiently. The Landscape Performance Program provides tools to help customers with the following:

- Utilize water resources more efficiently.
- Reduce water bills.
- Improve the health, appearance and the value of landscaping.
- Protect the environment by decreasing urban runoff.
- Access to each site's consumption data direct from SMWD and make comparisons between actual use and a calculated water efficient irrigation budget.
- Identify those accounts that are over watering (due to poor distribution uniformity and infrequent irrigation scheduling adjustments) for further discussion with the owner/property manager.
- Receive notification on upcoming training sessions, such as the California Friendly Landscape series, as well as links to events from other industry associations.

### **How the Landscape Performance Program Works**

The Landscape Performance Program creates a loop of accountability between the Property Owner/HOA Board, the Property Manager and the landscape contractor.

#### **1. Data Collected from Customer's Site:**

Basic information from the property, such as contact information, location, and irrigated landscape area for each dedicated irrigation water meter is collected and stored in a secure database.

#### **2. Consumption Data from SMWD:**

Every month SMWD develops a download of the consumption for all the irrigation accounts.

#### **3. Data from Weather Stations:**

A daily data download from three weather stations in Orange County is received. This data download contains weather information for three regions: a coastal

band; a central band; and a foothill band. Contained within this information is the Evapotranspiration Rate (ET<sub>o</sub>).

**4. Putting It All Together:**

A water budget is then developed for the site. This budget is an estimate of the annual, monthly, or weekly water requirements for a specific irrigation meter, and is calculated by combining two formulas (one for turf and one for shrubs and all other non-turf irrigated plant material).

Currently, SMWD has 1,744 dedicated irrigation meter accounts with water budgets which represent 61% of the total number of dedicated irrigation meter accounts within the service area (2,686). Table 4-7 summarizes the program participation by year for the last five years.

**Table 4-7: Landscape Performance Program Participation between 2006 and 2010**

Year	2006	2007	2008	2009	2010
<b>Number of meters in the program</b>	618	945	1,571	1,666	1,744
<b>Actual water savings (AFY)</b>	529	810	1,346	1,427	1,494

The methods to evaluate the effectiveness of the Landscape Performance Program involve tracking program participation from year to year and monitoring estimated water savings achieved. The site specific water budget developed for each participant allows SMWD to monitor program effectiveness down to the individual site level.

**Smart-Timer Rebate Program** - The Smart Timer Rebate Program started in FY 2004/05. This program is available to commercial customers when they purchase and install a new, state-of-the-art, weather-based irrigation timer. SMWD is responsible for a portion of the rebates being paid back to the customer's. This is a wholesaler managed program. Table 4-8 provides a summary of the number of Smart Timers installed and the water savings recognized by upgrading from manual clocks.

**Table 4-8: Smart-Timers Installed for Commercial Customers between 2006 and 2010**

Year	2006	2007	2008	2009	2010
<b>Weather Based Timers Installed</b>	96	70	44	152	15
<b>Water Savings (AFY)</b>	58.6	42.7	24.4	92.8	9.2

**California Friendly Landscape Training (Professional)** - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage

participation across the county. The Professional Training Program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class. Each participant receives a bound handbook containing educational materials for each class. These classes are offered throughout the year and taught in both English and Spanish languages.

In addition, SMWD takes advantage of regional and local efforts which target and market to large landscape properties including bill inserts, direct marketing efforts, ads in various publications, educational seminars/symposiums for property owners, and presentations at Homeowners Associations (HOAs) board meetings.

#### **4.2.6. DMM 6: High-Efficiency Washing Machine Rebate Programs**

SMWD provides customers access to a rebate for a High Efficiency Clothes Washer (HECW) through participation in the regional program sponsored by MWDOC and Metropolitan. The customer receives a rebate for replacing their old washing machine with a new High Efficiency Clothes Washer. This program is marketed through our bi-monthly newsletter and through our billing inserts.

Orange County residents are eligible to receive an \$85 rebate when they purchase of a new HECW. This program began in 2001 and is sponsored by MWDOC, Metropolitan, and local retail water agencies. Rebates are available on a first-come, first-served basis, while funds last. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. Machines must have a water factor of 4.0 or less. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility as additional rebates may be available.

As of FY 2010-11, 5,005 HECWs have been installed in single and multi-family homes within the SMWD’s service area through this program. These retrofits have saved over 607 acre feet of potable water over the program’s lifetime.

<b>Year</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Installed Clothes Washer</b>	654	683	740	257	713
<b>Actual Water Savings (AFY)</b>	18.1	18.9	20.4	7.1	19.7

#### **4.2.7. DMM 7: Public Information Programs**

SMWD recognizes the importance of water conservation and protection of water resources of the State. As a matter of policy and operational practice, SMWD seeks to maximize the beneficial use of available water resources. Therefore, it is the policy of SMWD to discourage and prevent water waste, and to encourage various water conservation methods.

## **SMWD's Local Public Information Programs**

SMWD outreach and education programs compliment water conservation programs implemented by Metropolitan and MWDOC. SMWD has the following programs designed to increase public awareness.

***Bi-Monthly Newsletter*** - SMWD publishes a bi-monthly newsletter called OnTap. The newsletter discusses a variety of topics, including water conservation, water reclamation, and landscape management. The newsletter is distributed to each customer as part of the billing cycle. This involves a mailing of approximately 55,000 newsletters bi-monthly.

***Bi-Monthly Bill Insert*** - SMWD also publishes a bi-monthly bill insert to provide dialogue with our customers during the months when OnTap is not produced. Messages include quick conservation tips, Home Gardener Workshop class information and upcoming event information. The mailing is the same as OnTap with a production of 55,000 inserts. Both the OnTap and bill insert are available for viewing and downloading on SMWD's website ([www.smwd.com](http://www.smwd.com)).

***Annual "Water Awareness Day" Event*** - This annual event is held by SMWD during Water Awareness Month in May. It is a family fun, education event with crafts, entertainment and activities geared towards water and conservation education. The event is held on a Saturday from 10 a.m. to 2 p.m. This year's event was held at SMWD's Upper Oso Reservoir.

***Communication with Facebook and Twitter*** - In 2009, SMWD created Facebook and Twitter pages (@SMWDwater) to increase and streamline communication with its customers. Each week, followers on both sites continue to increase and SMWD recognizes this social media tool as an invaluable way to communicate with our customers and key stakeholders.

***Educational Brochures*** - SMWD has developed four educational brochures which are available for customers to view and download from SMWD's website. These brochures include information about the following:

- **Water Quality:** Describes the source of water in the SMWD service area and provides specific information regarding water quality issues such as disinfectants, Cryptosporidium, lead, and monitoring programs.
- **Water Costs:** Describes SMWD's tiered rate structure, imported water cost, energy cost, availability of supply and provides detailed instructions on how a customer can read their water bill to determine their usage patterns.
- **Water Conservation:** Explains the need to conserve water based on limited supply in a semi-arid region and SMWD's water conservation programs, including voluntary conservation programs and mandatory curtailment. Also

provides water saving suggestions, such as installation of low-flow fixtures, landscape irrigation practices, and other water saving tips.

- **Water Wise Landscaping:** Comprehensive guide to drought tolerant planting, soil analysis, plant selection, landscape maintenance and irrigation practices. Also provides suggestions on proper watering, fertilizing and mowing of turf grass.

**Speaker Program** - SMWD's Public Affairs efforts include a variety of presentations designed to convey the water conservation message to local organizations including homeowner associations, service clubs, business organizations, church groups, and public and private schools.

### **MWDOC's Regional Public Information Programs**

MWDOC currently offers a wide range of public information programs in Orange County in collaboration with its member agencies including SMWD. Current regional public information programs within the MWDOC's service area are summarized below.

**Water Facility Inspection Trip Program** - The inspection trip program is sponsored by MWDOC and Metropolitan. Each year, Orange County elected officials, residents, business owners, and community leaders are invited to attend educational inspection trips to tour key water facilities throughout the state of California. The goal is to educate members of our community about planning, procurement and management of southern California's water supply and the issues surrounding delivery and management of this vital resource.

**O.C. Water Hero Program** - The goal of this program is to engage children in water use efficiency activities while facilitating discussion with friends and family members about how to save water. Any Orange County child can become a Water Hero by pledging to save 20 gallons of water per day. In exchange for their pledge, they receive a free Water Hero kit, which includes a variety of fun, water-saving items like a 5-minute shower timer and "fix-it" ticket pad for busting water wasters. To become a Superhero, a student must get their parents to also pledge to save 20 gallons of water per day. To date, more than 13,000 children in Orange County have become Water Heroes and more than 4,000 have become Superheroes.

**eCurrents** - This monthly electronic newsletter is designed to keep MWDOC's 28 member agencies, residents and businesses, stakeholder groups, opinion leaders, and others apprised of MWDOC news, programs, events, and activities. The publication also serves to keep readers informed about regional, state, and federal issues affecting water supply, water management, water quality, and water policy and regulation.

**Water Advisory Committee of Orange County (WACO)** - WACO was formed in 1983 to facilitate the introduction, discussion, and debate of current and emerging water issues among Orange County policymakers and water professionals. The committee’s membership has evolved to include elected officials and management staff from Orange County cities and water districts, engineers, attorneys, consultants, and other industry professionals. Monthly meetings are open to the public and are typically held on the first Friday of each month at 7:30 a.m.

**4.2.8. DMM 8: School Education Programs**

SMWD and MWDOC have implemented this BMP aggressively. MWDOC's regional water education program began in 1973 and provides water education to Orange County students in grades kindergarten through high school. The program teaches students about the water cycle, the importance and value of water and water conservation. While it is not feasible for SMWD to evaluate the water savings of this DMM, SMWD will continue to consider this DMM as vital and necessary.

**Water Education School Assemblies**

SMWD, in conjunction with MWDOC and Discovery Science Center, offers the Water Education School Program on-site at local elementary schools. This one hour, assembly-style presentation is grade-specific for Kindergarten through Fifth Grade and the curriculum is aligned with the California Science Content Standards.

After the assembly, SMWD produced educational hand-out materials and activities are provided to teachers and students in order to encourage further water-related education at home. These materials include a 16-page “Journey through Water” activity book produced and printed by SMWD. Also included is a recycled SMWD logo bag with conservation-messaged school supplies. Nearly 3,400 SMWD bags and activity books will be handed out to students in SMWD’s service area during the 2010-2011 school year. Table 4-9 provides a summary of program participation between FY 2007-08 to FY2011-12.

**Table 4-9: SMWD Water Education School Program Assemblies**

<b>Year</b>	<b>FY 07/08</b>	<b>FY08/09</b>	<b>FY 09/10</b>	<b>FY 10/11</b>	<b>FY 11/12</b>
<b>Students</b>	5,394	4,923	3,771	3,340	3,800

**Water Education Poster and Slogan Contest in Conjunction with MWDOC -**

Kindergarten through Sixth grade students are encouraged by SMWD to enter the county-wide Poster and Slogan contest by submitting artwork and slogans based on a water conservation theme. Winning artwork and slogans submitted by students in the SMWD service area are recognized by the SMWD Board of Directors during a regular board meeting. Winning students also receive a water conservation-related gift basket and are recognized in SMWD’s OnTap.

**Chiquita Treatment Plant Field Trips** - Twice a year, SMWD offers an on-site field trip to small student groups along with the Boy and Girls Scouts within SMWD's service area. The educational field trip consists of touring Chiquita Water Reclamation Plant, hands-on water experiments, an explanation of the SMWD agency structure including the board of directors and the role they play, and an educational video focusing on urban runoff as well as a conservation presentation with a question-and-answer period

Students role-play as water molecules, investigate human impacts on water and learn how to control pollution. These lessons include:

1. Scarcity of water in California
2. The forms and sources of water
3. The water cycle
4. Water storage, filtration, treatment, recycling & conservation

#### **4.2.9. DMM 9: Conservation Programs for Commercial, Industrial and Institutional Accounts**

SMWD offers financial incentives under the Save Water Save A Buck Rebate Program which offers rebates for various water efficient devices to CII customers. Those who qualify for the "Save a Buck Rebates" include businesses and companies who participate by installing or retrofitting with qualifying water saving devices.

SMWD has no industrial accounts. SMWD currently has 909 commercial accounts. A significant percentage of our commercial accounts are office buildings where water use is primarily in restrooms and bathroom fixtures (low consumption). Most of these commercial accounts were constructed after the 1992 plumbing code change which requires low flow devices to be installed.

***Save Water Save a Buck*** – This program began in 2002 and offers rebates to assist commercial, industrial, and institutional customers in replacing high-flow plumbing fixtures with low-flow fixtures. Facilities where low-flow devices are installed must be located in Orange County. Rebates are available only on those devices listed in Table 4-10 below and must replace higher water use devices. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as is applicable to their site.

**Table 4-10: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program**

Retrofit Device	Rebate Amount
High Efficiency Toilet	\$50
Ultra-Low-Water or Zero Water Urinal	\$200
Connectionless Food Steamers	\$485 per compartment
Air-Cooled Ice Machines (Tier III)	\$300
Cooling Tower Conductivity Controller	\$625
pH / Conductivity Controller	\$1,750
Dry Vacuum Pumps	\$125 per HP
Water Pressurized Broom	\$110

As of FY 2010/11 SMWD’s CII customers have installed a total 115 water-saving fixtures since FY 2001/02. This represents a water savings of 100 acre-feet.

SMWD evaluates the program’s effectiveness by tracking the number of devices and rebates given each year and the estimated water savings resulting from the program.

***Water Smart Hotel Program*** – In 2008 and 2009, MWDOC received grants from the CA Department of Water Resources and the US Bureau of Reclamation (USBR) to conduct the Water Smart Hotel Program, a program designed to provide Orange County hotels and motels with commercial and landscape water saving surveys, incentives for retrofits and customer follow-up and support. The goal of the program is to implement water use efficiency changes in hotels to achieve an anticipated water savings of 7,078 acre feet over 10 years.

The Program is offered to hotels in MWDOC’s service area as identified by retail water agencies. It is anticipated that detailed survey of the indoor and outdoor water using aspects of up to 105 participating hotels will be performed. Participating hotels will receive survey reports that recommend indoor and outdoor retrofits, upgrades, and other changes that should, based on the survey, result in significant water savings. Quantities of each device and associated fixture and installation costs, water savings and payback information (based on rebate amount Incentives offered through the Save Water Save A Buck Rebate Program will be augmented using DWR and USBR Water Use Efficiency grant funds to bridge the gap between existing incentives and the actual costs of Hotel Water Survey recommendations. To date, over 24 surveys have been performed county-wide, and over 9,500 water-saving devices have been installed through the program.

These devices are saving 351 acre feet per year or 3,510 acre feet over the ten year device life.

**4.2.10. DMM 10: Wholesale Agency Programs**

This BMP pertains to wholesale agency programs which are not applicable to SMWD, a retail agency. SMWD is a member agency of MWDOC, the region’s wholesaler that is responsible for the implementation and reporting requirements of this DMM.

**4.2.11. DMM 11: Conservation Pricing**

SMWD implemented a residential ascending five block tiered-rate pricing structure in 1991 that recovers cost for providing services and provides an economic incentive to reduce the usage of water and/or curb the excessive use of water. Non-residential customers are charged uniform rates as shown in Table 4-11.

**Table 4-11: SMWD Current Water Rates Summary**

Customer Class	Tier Range (CCF)	Rate per CCF
Residential	Lifeline 00 – 06	\$ 1.89
	07 – 20	\$ 2.01
	21 – 35	\$ 2.46
	36 – 70	\$ 2.95
	Over 70	\$3.77
Commercial	No Tier	\$ 2.05
Domestic Irrigation	No Tier	\$ 2.05
Non Domestic Irrigation	No Tier	\$ 1.74

SMWD has not conducted an evaluation of the water savings attributable to this DMM, however, SMWD will continue to make customers aware of the rate structure and use it as an incentive to promote water use efficiency.

**4.2.12. DMM 12: Water Conservation Coordinator**

SMWD has implemented utility operation programs emphasizing water conservation. SMWD staff includes a full-time Conservation Specialist dedicated to conservation programs. In addition, a supervisory level Conservation Coordinator is dedicated 25% to implementation of conservation projects. Also, the eight-member customer service field staff is utilized for field investigations, audits and other BMP 12 related tasks in addition to meter reading duties.

**When was the Conservation Specialist position created?**

**Please provide a description of responsibilities of the Conservation Specialist.**

#### **4.2.13. DMM 13: Water Waste Prohibition**

It is the desire of SMWD to achieve conservation of water resources whenever possible, such measures being consistent with legal responsibilities for utilization of the water resources of the State of California and SMWD. In 2009, the SMWD Board of Directors adopted Ordinance No. 09-07-02 Comprehensive Water Conservation Program. The Ordinance implements permanent water conservation measures, prohibits water waste and establishes drought measures. It establishes permanent water conservation requirements intended to alter behavior related to water use efficiency for non-shortage conditions. The Ordinance further establishes four levels of water supply shortage response actions to be implemented during times of declared water shortage. Details of this water ordinance are provided in Section 5 of this UWMP.

Permanent water conservation requirements include:

- A. Limits on Irrigation Practices
- B. No Washing Down Hard or Paved Surfaces
- C. Obligation to Fix Leaks, Breaks, or Malfunctions
- D. Recirculating Water Required for Water fountains and Decorative Water Features
- E. Limits on Washing Vehicles
- F. Drinking Water Served Upon Request Only
- G. Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services
- H. No Installation of Single Pass Cooling Systems
- I. No Installation of Non-re-circulating Water Systems in Commercial Car Wash and Laundry Systems
- J. Restaurants Required to Use Water conserving Dish Wash Spray Valves
- K. Commercial Car Wash Systems

It is also SMWD's policy to encourage the installation of ULFTs which flush with 1.6 gallons of water or less. Whenever reasonably possible, toilets in existence before the effective date of these Rules and Regulations shall be fitted with retrofit devices, such as, but not limited to, devices set into the toilet tank, which decrease the amount of water used to flush the toilets.

SMWD has not conducted an evaluation of the water savings attributable to this DMM specifically. However, the Comprehensive Water Conservation Program Ordinance has been in place over the last two years in which Metropolitan had established an allocation which reduced the availability of water. During that time period, water demand was reduced over 17% in response to SMWD’s conservation program.

**4.2.14. DMM 14: Residential Ultra-Low-Flush Toilet Replacement Programs**

SMWD participated in the ULFT Rebate Program through MWDOC. The Residential ULFT Rebate Program was designed to aid homeowners in replacing toilets manufactured before 1992 with new ultra low-flush toilets.

Water agencies have long recognized the water saving potential and economic benefits of ULFT installation. SMWD’s conservation program began with accelerating ULFT replacement because the savings captured were large, easy to quantify, and cost effective to implement with a saturation goal of pre-1992 fixtures.

To determine whether or not the 75% saturation was achieved within Orange County, a saturation study was conducted by MWDOC and Metropolitan and completed in FY2001. Data was obtained through telephone surveys and on-site inspections. Per the study, ULFT saturation for single family homes was projected in 2009. Multi-family saturation is estimated at 2014. As a result, Orange County and its water agencies, including SMWD, have reached the 75% saturation requirement for this BMP.

Please note that in 2008, a transition from the ULFT to HET began. Though the rebates have stopped on the toilets due to the saturation numbers, SMWD continues to market and educate customers on high efficiency toilets by utilizing our OnTap bi-monthly newsletter and through billing inserts.

County-wide over 360,000 ULFTs were replaced in single family and multi-family homes, with an overall program to date savings of approximately 138,457 acre feet of water. The HET rebate program, which concluded in 2010, has incentivized over 26,000 devices, with an overall program to date savings of approximately 3,419 acre-feet. Within SMWD’s service area, to date 6,522 ULFTs and 506 HETs have been installed within SMWD’s service area representing a combined water savings of 2,625 acre-feet. Table 4-12 provides the number of ULFTs and HETs replaced in the last five years within SMWD’s service area.

**Table 4-12: SMWD’s ULFT and HET Rebate Program Participation in 2006 - 2010**

Year	2006	2007	2008	2009	2010
<b>No. of ULFTs replaced</b>	143	101	29	0	0
<b>Water savings (AFY)</b>	5.4	3.8	1.1	0	0
<b>No. of HETs replaced</b>	5	14	304	151	44
<b>Water Savings (AFY)</b>	0.2	0.6	12.9	6.4	1.9

The effectiveness of the program has been evaluated based on the number of rebates provided and the saturation achieved.

## 5. Water Supplies Contingency Plan

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### 5.1. Overview

Recent water supply challenges throughout the American Southwest and the State of California have resulted in the development of a number of policy actions that water agencies would implement in the event of a water shortage. In southern California, the development of such policies has occurred at both the wholesale and retail level. This section describes how new and existing policies that Metropolitan, MWDOC and SMWD have in place to respond to water supply shortages, including a catastrophic interruption and a reduction of over 40 percent in water supply.

### 5.2 Shortage Actions

#### Metropolitan

As an importer of water from multiple sources, including both the Colorado River and Sierra Nevada, a number of water supply challenges have impacted the reliability of Metropolitan's imported supplies. In response to these challenges, Metropolitan has implemented existing policies as well as developed new ones.

The first action that Metropolitan implements in the event of a water shortage is the suspension and/or reduction of its interruptible supplies, which are supplies sold at a discount in return for the buyers agreeing to be the first to be cutback in the event of a shortage. Metropolitan currently has two interruptible programs for agricultural users and groundwater replenishment, under which supplies were either suspended or reduced in 2007.

In addition, in preparation for the possibility of being unable to meet "firm demands" (non-interruptible supplies) of its member agencies, in February 2008, the Metropolitan's Board of Directors (Board) adopted the Water Supply Allocation Plan (WSAP), which was subsequently updated in June 2009.

Metropolitan's plan includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. Metropolitan's WSAP is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's 2010 Regional Urban Water Management Plan (RUWMP).

Metropolitan's WSAP was developed in consideration of the principles and guidelines described in Metropolitan's 1999 Water Surplus and Drought Management Plan (WSDM), with the objective of creating an equitable needs-based allocation. The plan's 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 of up to 50 percent. The formula takes into account: impact on retail customers and the economy; growth and population; changes in supply conditions; investments in local resources; demand hardening aspects of non-potable recycled water use; implementation of conservation savings program; participation in Metropolitan's interruptible programs; and investments in facilities.

The formula is calculated in three steps: based period calculations, allocation year calculations, and supply allocation calculations. The first two steps involve standard computations, while the third section contains specific methodology developed for the WSAP.

***Step 1: Base Period Calculations*** – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the three most recent non-shortage years, 2004-2006.

***Step 2: Allocation Year Calculations*** – The next step in calculating the water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population or economic growth and changes in local supplies.

***Step 3: Supply Allocation Calculations*** – The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2. Each element and its application in the allocation formula are discussed in detail in Metropolitan's WSAP.

In order to implement the WSAP, the Metropolitan Board makes a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is determined allocations are necessary, they go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

Metropolitan's 2010 RUWMP forecasts that Metropolitan will be able to meet projected firm demands throughout the forecast period from 2015 to 2035. However, these projections do not mean that Metropolitan would not implement its WSAP during this period.

## MWDOC

To prepare for the potential allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 client agencies to develop its own Water Supply Allocation Plan (MWDOC WSAP), adopted January 2009, to allocate imported water supplies at the retail level. The MWDOC WSAP lays out the essential components of how MWDOC will determine and implement each client agency's allocation during a time of shortage.

The MWDOC WSAP uses a similar method and approach, when reasonable, as that of the Metropolitan's WSAP. However, MWDOC's plan remains flexible to use an alternative approach when Metropolitan's method produces a significant unintended result for the client agencies. The MWDOC WSAP model follows five (5) basic steps to determine a retail agency's imported supply allocation.

***Step 1: Determine Baseline Information*** – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the last three non-shortage years – calendar years, 2004, 2005, and 2006.

***Step 2: Establish Allocation Year Information*** – In this step, the model adjusts for each member agency's water need in the allocation year. This is done by adjusting the base period estimates for increased retail water demand based on growth and changes in local supplies.

***Step 3: Calculate Initial Minimum Allocation Based on Metropolitan's Declared Shortage Level*** – This step sets the initial water supply allocation for each client agency. After a regional shortage level is established, MWDOC will calculate the initial allocation as a percentage of adjusted Base Period Imported water needs within the model for each client agency.

***Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts, Conservation, and the Interim Agriculture Water Program*** – In this step, the model assigns additional water to address disparate impacts at the retail level caused by an across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

***Step 5: Sum Total Allocations and Determine Retail Reliability*** – This is the final step in calculating a retail agency's total allocation for imported supplies. The model sums an agency's total imported allocation with all of the adjustments and credits and then calculates each agency's retail reliability compared to its Allocation Year Retail Demand.

The MWDOC WSAP includes additional measures for plan implementation, including the following:

- **Appeal Process** – An appeals process to provide client agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a client agency’s appeal will be the basis for an appeal to Metropolitan by MWDOC.
- **Melded Penalty Rate Structure** – At the end of the allocation year, MWDOC would only charge a penalty to each client agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a penalty to Metropolitan. Metropolitan enforces allocations to member agencies through a tiered penalty rate structure: penalty rates to a member agency that exceeds its total annual allocation at the end of the twelve-month allocation period, according to a specified rate structure. MWDOC’s penalty would be assessed according to the client agency’s prorated share (acre-feet over usage) of MWDOC penalty amount with Metropolitan. Penalty funds collected by Metropolitan will be invested in water conservation and local resource development.
- **Tracking and Reporting Water Usage** – MWDOC will provide each client agency with water use monthly reports that will compare each client agency’s current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on it cumulative retail usage versus its allocation baseline.
- **Timeline and Option to Revisit the Plan** – The allocation period will cover 12 consecutive months and the Regional Shortage Level will be set for the entire allocation period. MWDOC only anticipates calling for allocation when Metropolitan declares a shortage; and no later than 30 days from Metropolitan’s declaration will MWDOC announce allocation to its client agencies.

Due to the complexity of calculating allocations and the potential for unforeseen circumstances that may occur during an allocation year, after one year of implementation, MWDOC staff and client agencies have the opportunity to make recommendations to the MWDOC Board that will improve the method, calculation, and approach of the MWDOC WSAP.

## **SMWD**

The SMWD Board of Directors adopted Comprehensive Water Conservation Program Ordinance No. 09-07-02 on July 10, 2009, which establishes a comprehensive water conservation program that will encourage reduced water consumption within SMWD through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within SMWD. Along with permanent water conservation requirements, SMWD’s Comprehensive Water Conservation Program consists of the following four stages found

in Table 5-1 to respond to a reduction in potable water available to SMWD for distribution to its customers with Stage 1 in effect at all times unless a mandatory conservation stage has been implemented by the Board of Directors.

**Table 5-1: Water Supply Shortage Stages and Conditions – Rationing Stages**

Stage No.	Water Supply Conditions	% Shortage
1	Voluntary Conservation	Up to 10%
2	SMWD determines, in its sole discretion, that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists.	Up to 20%
3	A significant reduction in consumer demand is necessary to maintain sufficient water supplies for public health and safety.	Up to 40%
4	SMWD declares severe drought conditions exist.	Over 40%

### 5.3. Three-Year Minimum Water Supply

As a matter of practice, Metropolitan does not provide annual estimates of the minimum supplies available to its member agencies. As such, Metropolitan member agencies must develop their own estimates for the purposes of meeting the requirements of the Act.

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its “preferential right” to water, which grants each member agency a preferential right to purchase a percentage of Metropolitan’s available supplies based on specified, cumulative financial contributions to Metropolitan. Each year, Metropolitan calculates and distributes each member agency’s percentage of preferential rights. However, since Metropolitan’s creation in 1927, no member agency has ever invoked these rights as a means of acquiring limited supplies from Metropolitan.

As an alternative to preferential rights, Metropolitan adopted the Water Shortage Allocation Plan (WSAP) in February 2008. Under the WSAP, member agencies are allowed to purchase a specified level of supplies without the imposition of penalty rates. The WSAP uses a combination of estimated total retail demands and historical local supply production within the member agency service area to estimate the firm demands

on Metropolitan from each member agency in a given year. Based on a number of factors, including storage and supply conditions, Metropolitan then determines whether it has the ability to meet these firm demands or will need to allocate its limited supplies among its member agencies. Thus, implicit in Metropolitan's decision not to implement an allocation of its supplies is that at a minimum Metropolitan will be able to meet the firm demands identified for each of the member agencies.

In order to estimate the minimum available supplies from Metropolitan for the period 2011-2013, an analysis was performed to assess the likelihood that Metropolitan would re-implement mandatory water use restrictions in the event of a 1990-92 hydrologic conditions over this period. Specific water management actions during times of water shortage are governed by Metropolitan's Water Shortage and Drought Management Plan (WSDM Plan). Adopted by the Metropolitan Board in 1999, the WSDM Plan provides a general framework for potential storage actions during shortages, but recognizes that storage withdrawals are not isolated actions but part of a set of resource management actions along with water transfers and conservation. As such, there is no specific criterion for which water management actions are to be taken at specific levels of storage. The implementation of mandatory restrictions is solely at the discretion of the Metropolitan Board and there are no set criteria that require the Board to implement restrictions. Given these conditions, the analysis relies upon a review of recent water operations and transactions that Metropolitan has implemented during recent drought.

The first step in the analysis was a review of projected SWP allocations to Metropolitan, based on historical hydrologies. As with the recent drought, potential impacts to SWP supplies from further drought and the recently implemented biological opinions are anticipated to be the biggest challenges facing Metropolitan in the coming three years.

A review of projected SWP allocations from the DWR's State Water Project Delivery Reliability Report 2009 (2009 SWP Reliability Report) was made to estimate a range of conservative supply assumptions regarding the availability of SWP supplies. The 2009 SWP Reliability Report provides estimates of the current (2009) and future (2029) SWP delivery reliability and incorporates regulatory requirements for SWP and CVP operations in accordance with USFWS and NMFS biological opinions. Estimates of future reliability also reflect potential impacts of climate change and sea level rise.

The analysis assumes a maximum SWP allocation available to Metropolitan of 2,011,500 AF and a Metropolitan storage level of 1,700,000 AF at 2010 year-end. The analysis also assumes a stable water supply from the Colorado River in the amount of 1,150,000 AF through 2015. Although the Colorado River watershed has also experienced drought in recent years, Metropolitan has implemented a number of supply programs that should ensure that supplies from this source are relatively steady for the next three years. Based

on estimated “firm” demands on Metropolitan of 2.12 MAF, the annual surplus or deficit was calculated for each year of the three-year period.

A review of recent Metropolitan water management actions under shortage conditions was then undertaken to estimate the level of storage withdrawals and water transfers that Metropolitan may exercise under the 1990-92 hydrologic conditions were identified. For this analysis, it was assumed that, if Metropolitan storage levels were greater than 2 MAF at the beginning of any year, Metropolitan would be willing to take up to 600 TAF out of storage in that year. Where Metropolitan storage supplies were between 1.2 MAF and 2 MAF at the beginning of the year, it was assumed that Metropolitan would be willing to take up to 400 TAF in that year. At storage levels below 1.2 MAF, it was assumed that Metropolitan would take up to 200 TAF in a given year.

It was also assumed that Metropolitan would be willing to purchase up to 300 TAF of water transfer in any given year. For years where demands still exceeded supplies after accounting for storage withdrawals, transfer purchases were estimated and compared against the 300 TAF limit.

**Table 5-2: Metropolitan Shortage Conditions**

Study Year	Actual Year	SWP Allocation (%)	SWP (AF)	CRA (AF)	Total (AF)	Demand (AF)	Surplus/ Shortage (AF)	Storage at YE (AF)	Transfers (AF)
2011	1990	30%	603,450	1,108,000	1,711,450	2,124,000	(400,000)	1,300,000	(12,550)
2012	1991	27%	542,820	1,108,000	1,650,820	2,123,000	(200,000)	1,100,000	(272,180)
2013	1992	26%	522,990	1,108,000	1,630,990	2,123,000	(200,000)	900,000	(292,010)

Based on the analysis above, Metropolitan would be able to meet firm demands under the driest three-year hydrologic scenario using the recent water management actions described above without re-implementing mandatory water use restrictions on its member agencies. Given the assumed absence of mandatory restrictions, the estimated minimum imported water supplies available to MWDOC from Metropolitan is assumed to be equal to Metropolitan’s estimate of demand for firm supplies for MWDOC, which Metropolitan uses when considering whether to impose mandatory restrictions. Thus, the estimate of the minimum imported supplies available to MWDOC is 261,577 AF<sup>5</sup>.

MWDOC has also adopted a shortage allocation plan and accompanying allocation model that estimates firm demands on MWDOC. Assuming MWDOC would not be imposing mandatory restrictions if Metropolitan is not, the estimate of firms demands in MWDOC’s latest allocation model has been used to estimate the minimum imported

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<sup>5</sup> Metropolitan 2010/11 Water Shortage Allocation Plan model (March 2011)

supplies available to each of MWDOC’s customer agencies for 2011-13. Thus, the estimate of the minimum imported supplies available to SMWD is 34,196 AF<sup>6</sup>.

As captured in its 2010 RUWMP, Metropolitan believes that the water supply and demand management actions it is undertaking will increase its reliability throughout the 25-year period addressed in its plan. Thus for purposes of this estimate, it is assumed that Metropolitan and MWDOC will be able to maintain the identified supply amounts throughout the three-year period.

Metropolitan projects reliability for full service demands from 2015 through the year 2035. Additionally, local supplies are projected to be maintained at demand levels. Based on the MWDOC Water Supply Allocation Plan, the SMWD is expected to fully meet demands for the next three years assuming Metropolitan and MWDOC are not in shortage and zero allocations are imposed for Imported Supplies. The Three Year Estimated Minimum Water Supply is listed in Table 5-3.

**Table 5-3: Three-Year Estimated Minimum Water Supply (AFY)**

Source	Year 1	Year 2	Year 3
Local	116	116	116
Imported	34,196	34,196	34,196
<i>Total</i>	<i>34,312</i>	<i>34,312</i>	<i>34,312</i>

## 5.4. Catastrophic Supply Interruption

Given the great distances that imported supplies travel to reach Orange County, the region is vulnerable to interruptions along hundreds of miles aqueducts, pipelines and other facilities associated with delivering the supplies to the region. Additionally, this water is distributed to customers through an intricate network of pipes and water mains that are susceptible to damage from earthquakes and other disasters.

### Supplemental Dry Year(s) Supplies

Metropolitan's 2010 RUWMP, as discussed above, projects adequate supply reliability from 2015 through at least 2035 including during single and multiple dry year(s). For purposes of further augmenting supply reliability during single dry and multiple dry years, SMWD has entered into two water purchase agreements involving existing water supplies located in the Chino Groundwater Basin.

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<sup>6</sup> MWDOC Water Shortage Allocation model (August 2010)

The supplemental dry year(s) supply agreements addressed in this UWMP are directed to ensuring that additional water demands on SMWD's water resources, including potable and non-potable supplies, associated with The Ranch Plan do not result in a reduction in water supplies for existing demands/customers, while also taking into consideration approved new development uses (exclusive of The Ranch Plan). The supplemental water supplies addressed in this section enable SMWD to provide water for future customers without affecting the availability or reliability of supplies for existing customers under normal, dry or multiple dry year water years.

***SMWD/Cucamonga Valley Water District Agreement*** – On March 25, 2003, SMWD and Cucamonga Valley Water District (CVWD) (formerly known as Cucamonga County Water District) entered into an exclusive three-year option agreement which, enabled SMWD to enter into a water supply contract with CVWD for at least 25 years for the purchase and delivery of 4,250 acre-feet of water each year over the term of the contract. The three-year option period provided sufficient time for the approval process for The Ranch Plan. A copy of the option agreement and water supply contract are included in Appendix E and F respectively.

SMWD exercised the option to purchase water and committed to paying CVWD for 4,250 acre-feet of water each year irrespective of whether the water is called. SMWD and the owners of land encompassing The Ranch Plan have entered into a separate agreement whereby the latter is responsible for paying all costs associated with the water purchase contracts.

The water supply contract is specifically directed, and exclusive, to augmenting water supply reliability for The Ranch Plan as indicated in those contracts. In the event of unexpected MWD supply shortfalls up to 4,250 acre-feet of water can be called in each year to supplement MWD supplies. The effect of calling this water in the event of MWD supply shortfalls will be to enable the delivery of the amount of water necessary to meet The Ranch Plan demands during such a shortfall, while at the same time satisfying demands associated with SMWD's existing customers.

The amount of 4,250 acre-feet of water has been secured to provide at least 88% redundancy to The Ranch Plan's projected Year 2025 potable water demand of 4,840 acre-feet during normal years and thus augment MWD's already conservative projected supply reliability as discussed above. Expected increased demand during dry and multiple dry years, will be met by increasing recycled water production, potentially from local supplies, and thus will enable at least a 50% margin of potable water supply redundancy in addition to meeting non-potable demands for The Ranch Plan.

***SMWD/Golden State Water Company Agreement*** – On December 28, 2001, SMWD and Golden State Water Company (now known as Golden State Water Company; GSWC) entered into a water sale and purchase agreement providing for the purchase of 2,000

acre-feet of water by SMWD. The water is currently stored in the Chino Groundwater Basin. A copy of this agreement is included in Appendix G.

The GSWC stored water was acquired in contemplation of augmenting MWD water supplies for The Ranch Plan. The water may be called if necessary to supplement the CVWD supply discussed above and is included for this purpose in this UWMP.

### **Metropolitan**

Metropolitan has comprehensive plans for stages of actions it would undertake to address a catastrophic interruption in water supplies through its WSDM and WSAP Plans. Metropolitan also developed an Emergency Storage Requirement to mitigate against potential interruption in water supplies resulting from catastrophic occurrences within the southern California region, including seismic events along the San Andreas Fault. In addition, Metropolitan is working with the State to implement a comprehensive improvement plan to address catastrophic occurrences that could occur outside of the Southern California region, such as a maximum probable seismic event in the Delta that would cause levee failure and disruption of SWP deliveries. For greater detail on Metropolitan's planned responses to catastrophic interruption, please refer to Metropolitan's RUWMP.

### **Water Emergency Response Organization of Orange County**

In 1983, the Orange County water community identified a need to develop a plan on how agencies would respond effectively to disasters impacting the regional water distribution system. The collective efforts of these agencies resulted in the formation of the Water Emergency Response Organization of Orange County (WEROC) to coordinate emergency response on behalf of all Orange County water and wastewater agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC was established with the creation of an indemnification agreement between its member agencies to protect each other against civil liabilities and to facilitate the exchange of resources. WEROC is unique in its ability to provide a single point of contact for representation of all water and wastewater utilities in Orange County during a disaster. This representation is to the county, state, and federal disaster coordination agencies. Within the Orange County Operational Area, WEROC is the recognized contact for emergency response for the water community.

### **SMWD**

SMWD is subject to service disruption from pipeline and treatment plant failures due to disasters and equipment failures. In preparation for catastrophic supply interruption, SMWD has developed a system of interties and storage to meet emergency demands and

in recent years has been developing reliability plans and coordinating with MWDOC in regional reliability planning. SMWD is a member of WEROC. The supply planning identified in Section 3 includes agreements for supplemental dry year supply to address source of supply interruptions such as droughts.

### **Interconnections**

SMWD maintains interconnections with other adjacent local water suppliers including, Moulton Niguel Water District (MNWD), Irvine Ranch Water District (IRWD), Trabuco Canyon Water District (TCWD), El Toro Water District (ETWD), City of San Juan Capistrano and City of San Clemente. The interconnections are various sizes and generally operate as an emergency source of supply. The significance of these connections is to collectively increase the water supply delivery reliability for interconnected agencies, including SMWD, particularly in the event of physical system failures involving delivery pipelines. The interconnections also operate to temporarily diversify SMWD's sources of water supply in the event deliveries are received from IRWD and TCWD, whose sources include local groundwater and imported untreated water.

### **Storage**

SMWD purchased fifty percent of the capacity in the El Toro R-6 Domestic Water Reservoir which substantially increased the emergency storage within SMWD. In addition, SMWD has a distribution system of storage reservoirs which are designed to supply fire flow and one maximum-day of storage. SMWD is the lead agency for construction of the 750 AF Upper Chiquita Reservoir, scheduled for completion in Fall 2011 which will increase the regional storage capacity.

Table 5-4 provides a summary of SMWD proposed actions in response to possible catastrophes.

**Table 5-4: Preparation Actions for Catastrophe**

Possible Catastrophe	Preparation Actions
Regional Power Outage	Coordinate with Southern California Edison and/or San Diego Gas and Electric for schedule of restoration of service. At sites with back-up power generators check that the generator is functioning and determine fuel requirements. Assess reservoir levels and coordinate reduction of demand. Provide back-up emergency pumps as required to meet demands.
Earthquake	Activate emergency response plan; contact customers directly or through media as needed to curtail demand; initiate mutual aid with neighboring districts, coordinate with California Department of Health Services (DHS) as required, issue health directives as needed.
Facility Failure	Isolate facility and coordinate demand reduction as required; issue appropriate health directives as needed. Provide alternative service and initiate repairs or replacement of facility
Water Supply Interruption	Initiate water demand reductions as appropriate to insure fire safety and health concerns are met, request intertie activation, utilize storage as appropriate
Water Supply Contamination	Notify DHS and law enforcement as necessary, isolate systems containing contamination; issue health directives as needed.

## 5.5. Prohibitions, Penalties and Consumption Reduction Methods

### Prohibitions

The Comprehensive Water Conservation Program Ordinance No. 09-07-02 lists water conservation requirements which shall take effect upon implementation and urban runoff reduction efforts, and enable implementation of SMWD’s Water Shortage Contingency Measures. Prohibitions include but are not limited to the following restricted activities: outdoor watering, washing of vehicles, washing of hard or paved surfaces, filling or refilling swimming pools and decorative water features, using potable water in construction activities, and serving water in eating or drinking establishments. Additionally, SMWD requires leaks to be repaired in a time frame relative to each water supply shortage level. The prohibitions and the stages at which they take effect can be found in Table 5-5.

**Table 5-5: Mandatory Prohibitions**

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Watering or irrigating of any vegetated area with potable water is prohibited between the hours of 8:00 am and 6:00 pm on any day, except by use of a hand held container, hand held hose equipped with an automatic shut off device, by use of low flow irrigation systems and weather based controllers or efficient stream rotor sprinklers, or for the express purpose of adjusting or repairing an irrigation system is exempt.	1
Watering or irrigating of any vegetated area with potable water using a landscape irrigation system that is not continuously attended is limited to no more than fifteen (15) minutes watering per day per station except by use of low flow irrigation systems and weather based controllers or efficient stream rotor sprinklers.	1
Watering or irrigating of any vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter, or ditch is prohibited.	1
Washing down hard or paved surfaces is prohibited except when necessary to alleviate safety or sanitary hazards and then only by use of a hand held container, hand held hose equipped with an automatic shut off device, low volume high pressure cleaning machine equipped to recycle any water used, or a low volume high pressure water broom.	1
Leaks, breaks, or malfunctions must be repaired within seven (7) days of District notification unless other arrangements are made with SMWD.	1
Water fountains and decorative water features must re-circulate water.	1
Washing vehicles is prohibited except by use of a hand held container, hand held hose equipped with an automatic shutoff device, or at a commercial car washing facility.	1
Eating or drinking establishments are prohibited from providing drinking water to any person unless expressly requested.	1
Installation of single pass cooling systems is prohibited in buildings requesting new water	1

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
service.	
Installation of non-re-circulating water systems is prohibited in commercial conveyor car wash and new commercial laundry systems. All commercial conveyor car wash systems must have installed operational re-circulating systems or secured a waiver from SMWD.	1
Food preparation establishments are prohibited from using non water conserving dish spray valves.	1
Watering or irrigating of any vegetated area with potable water is limited to three days per week on a schedule established and posted by SMWD and one day per week during the months of November through march. Irrigation that exclusively uses very low flow drip type irrigation systems, hand held containers, hand held hoses equipped with automatic shut off devices, or is for the express purpose of adjusting or repairing an irrigation system is exempt.	2
Leaks, breaks, or malfunctions must be repaired within forty-eight (48) hours of District notification unless other arrangements are made with SMWD.	2
Filling or refilling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life of significant value.	2
Using water to wash or clean a vehicle is prohibited except by use of a hand held container, hand held hose equipped with an automatic shut off device, high pressure low volume wash systems, or at a commercial car washing facility that recycles wash water.	2
Refilling of more than one foot and initial filling of residential swimming pools or outdoor spas with potable water is prohibited.	2
The use of domestic water for construction purposes shall be permitted by a water construction use permit obtained from SMWD.	2
Watering or irrigating of any vegetated area with potable water is limited to two days per week on a schedule established and posted by SMWD and one day per week during the months of November through march. Irrigation that exclusively uses very low flow drip type irrigation systems, hand held containers, hand held hoses equipped with	3

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
automatic shut off devices, or is for the express purpose of adjusting or repairing an irrigation system is exempt.	
Leaks, breaks, or malfunctions must be repaired within twenty-four (24) hours of District notification unless other arrangements are made with SMWD.	3
Filling or refilling of artificial lakes shall only be permitted with permission from SMWD.	3
No new potable water service, meters, or will-serve letters will be provided or issued except under the following circumstances: <ul style="list-style-type: none"> <li>a. A valid, unexpired building permit has been issued for the project; or</li> <li>b. The project is necessary to protect the public health, safety, and welfare; or</li> <li>c. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of SMWD.</li> </ul>	3
SMWD will suspend consideration of annexations that will result in any increased use of water.	3
All outdoor irrigation with potable water is prohibited.	4
Use of water for agricultural or commercial nursery purposes is prohibited, except for livestock watering.	4
Washing of vehicles is prohibited except upon the immediate premises of a commercial car wash. Commercial car washes shall reduce water use by 50% in volume. Washings where the health, safety, and welfare of the public is contingent upon frequent vehicle cleaning is exempt.	4
Filling, refilling, or adding of water to swimming pools, spas, ponds, or artificial lakes is prohibited.	4
Use of domestic water for construction purposes is prohibited.	4

## Consumption Reduction Methods

SMWD has metered water connections and water consumption is billed on a monthly basis. Excessive water usage is monitored regularly and customers with high usage are contacted to review for on-site problems or informed of education opportunities to limit water usage. SMWD operation staff monitors the daily importation and distribution of water and documents regional deliveries. Anomalies in water demands are noted by staff for further investigation.

SMWD has an ongoing information program directed at the customers. This includes a monthly newsletter with information on water conservation and demand management practices. In addition, SMWD offers tours and educational classes on irrigation and water conscious landscaping. SMWD staff reviews installation of centralized irrigation and keeps a record of contact information to provide notification in event of a problems requiring irrigation to be reduced. During the AMP shutdown due to pipeline failure SMWD was able to reduce demands by 43% through public notification, restricting potable water used for centralized irrigation and construction water demands. It is estimated that a ban on residential irrigation will increase reduction to over 50%.

Table 5-6 is a summary of the reduction methods utilized by SMWD staff during water shortages.

**Table 5-6: Consumption Reduction Methods**

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Ongoing education program and information campaign	1	10%
Inform public of water shortage through press releases, billing notices, homeowner associations, and local government agencies. Notice to provide requested reduction and recommend activities to reduce demand. Specific notice provided to construction and large irrigation users through direct contact by staff.	2	20%
Additional public notice of implemented restrictions and direct contact. Adoption of restrictions by Board of Directors per Conservation ordinance. Staff to provide notice to construction and large irrigation customers, meters to be locked as required.	3	20%
Additional public notice provided and further restrictions adopted by the Board. Ban of potable water for irrigation and construction use. Implementation of water use monitoring and patrolling by staff to enforce restrictions. Meters to be locked or removed as required.	4	40 to 50%

### Penalties

Any customer who violates provisions of the Comprehensive Water Conservation Program by either excess use of water or by specific violation of one or more of the applicable water use restrictions for a particular mandatory conservation stage may be cited by SMWD and may be subject to written notices, surcharges, fines, and flow restrictions which are detailed in Table 5-7.

**Table 5-7: Penalties and Charges**

Penalties or Charges	Stage When Penalty Takes Effect
Written Notice	First and Second Violations, Stages 1 and 2
Surcharge in the amount of \$100	Third Violation, Stages 1 and 2
Surcharge in the amount of \$200	Fourth Violation, Stages 1 and 2
Written Notice	First Violation, Stages 3 and 4
Surcharge in the amount of \$200	Second Violation, Stages 3 and 4
Fines and flow restrictions.	Third Violation, Stages 3 and 4.
Possible discontinuation of service.	Willful Violation, Stage 4

## 5.6. Impacts to Revenue

During preparation of rate analysis by SMWD, an analysis of the impacts on revenues and expenditures for various water supply and demand scenarios is performed to review the sensitivity of the rate structure and determine fixed and variable cost impacts. SMWD sets rates to recover its operating costs and, with the tiered structure, to encourage conservation.

SMWD has an ascending block structure for residential users which provides a financial incentive for SMWD’s largest block of customers to use water wisely by increasing the unit price as usage increases.

The monthly service charge is a fixed meter charge that varies with the size of the water meter connection. Meter charges are set to meet approximately 65% of SMWD’s fixed costs of operation (e.g. salaries, supplies, etc.) The variable ascending commodity charge is set to match the cost of producing and purchasing water and the unfunded portion of the fixed costs. The tiered rate structure is based on the number of units of water used. As previously described, this structure establishes an increasing unit cost per 100 cubic feet of water. The pumping surcharge is added to the commodity rate of those users who reside at higher elevations within the service area. The surcharge is based on prevailing energy charges.

SMWD established a rate stabilization reserve (current reserve is \$9 million) to minimize the effects on rates due to changes in water purchase cost and consumption patterns due to either weather conditions or imposed conservation measures. Assuming a 40% reduction in water consumption, SMWD estimates a net operating shortfall of approximately \$3.6 million. As indicated above the current rate stabilization reserve would be adequate to cover the shortfall for approximately two years.

Tables 5-8 and 5-9 summarize SMWD's proposed measures to address revenue and expenditure impacts.

*Calculation of Revenue Impacts is an Add-On.*

**Table 5-8: Proposed Measures to Overcome Revenue Impacts**

Name of Measures
Rate Adjustment
Development of Reserves
Reduce Expenses

**Table 5-9: Proposed Measures to Overcome Expenditure Impacts**

Name of Measures
Use of Reserves
Reduce Expenses

## 5.7. Reduction Measuring Mechanism

SMWD employs a variety of mechanisms to determine actual water reduction in water use. All connections are metered and each meter is read monthly. Records are kept for analysis and determination of customers using water in higher tiers. During emergency situations, the interval between readings can be modified to increase frequency for the high users. Additionally, SMWD tracks water importation and production amounts daily and reports those to appropriate departments for monitoring. Also, SMWD coordinates with large irrigation customers to establish irrigation cycles and irrigation demands. Table 5-10 provides examples of potential mechanisms for measuring reductions of customers' water use.

MWDOC will provide each client agency with water use monthly reports that will compare each client agency's current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on its cumulative retail usage versus its allocation baseline.

**Table 5-10: Water Use Monitoring Mechanisms**

Mechanisms for Determining Actual Reductions	Type of Data Expected
Analysis of historical water use	Monthly water usage
Review of importation/production	Daily water supply
More frequent reading of high usage meters	Water usage trends
Coordination with large irrigation customers	Water Demand identification and trending
MWDOC Water Use Monthly Reports	Comparison of cumulative retail usage to allocation baseline.

## 6. Recycled Water

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### 6.1. Agency Coordination

There are a number of water agencies in south Orange County that provide potable water service as well as wastewater collection and treatment. These agencies depend on imported water supplies for the majority of their potable water supplies due to misfortune of geography in that very little groundwater supplies are available. These agencies have been in the forefront of recycled water development to diversify water supplies. South Orange County Wastewater Authority (SOCWA) was formed to construct and operate regional treatment plants.

**Table 6-1: Participating Agencies**

Participating Agencies	Participated
Water Agencies	SMWD, MNWD, TCWD
Wastewater Agencies	SOCWA
Groundwater Agencies	SJBA

### 6.2. Wastewater Description and Disposal

Wastewater generated in SMWD is treated at the following facilities:

Oso Creek Water Reclamation Plant (OCWRP) is an activated sludge plant that treats wastewater to tertiary levels in compliance with the California Administrative Code Title 22 (Title 22) for use as recycled water. Wastewater is diverted from the Oso Trunk Sewer for liquid treatment at OCWRP, the solids are returned to the trunk sewer for treatment downstream at either the MNWD 3A Plant or SOCWA's Jay B. Latham Plant. The rated capacity is 3 MGD and 1.5 to 2.0 MGD is treated on average.

IRWD Los Alisos Reclamation Plant is owned and operated by IRWD. SMWD has an agreement for treatment of up to 0.7 MGD and approximately 0.6 MGD is treated on average.

MNWD 3A Plant is operated by SOCWA and SMWD has 2.25 MGD capacity in the activated sludge secondary system. The wastewater is treated to secondary levels for ocean disposal through the SOCWA San Juan Outfall.

SOCWA’s Jay B. Latham Plant is an activated sludge facility. SMWD has 2.25 MGD of secondary capacity. Wastewater is treated to secondary levels for ocean disposal through the SOCWA San Juan Outfall.

Chiquita Water Reclamation Plant (CWRP) is owned and operated by SMWD. The plant has a rated capacity of 9 MGD and currently flows are approximately 6.7 MGD. CWRP has primary solids handling capacity of 9 MGD and secondary capacity divided between two treatment process, trickling filter capacity of 6 MGD and activated sludge capacity of 5 MGD. CWRP tertiary capacity is 5 MGD to meet Title 22 standards. Secondary effluent that is not recycled is discharged through the Chiquita Land Outfall to the SOCWA San Juan Outfall.

Nichols Water Reclamation Plant has a 40,000 gallon per day (gpd) capacity and treats approximately 25,000 gpd to Title 22 standards for recycled water.

Table 6-2 summarizes the past, current, and projected wastewater volumes collected and treated, and the quantity of wastewater treated to recycled water standards for treatment plants within SMWD’s service area. Table 6-3 summarizes the disposal method, and treatment level of discharge volumes.

**Table 6-2: Wastewater Collection and Treatment (AFY)**

Type of Wastewater	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Wastewater Collected & Treated in Service Area	8,002	11,576	14,336	16,464	17,414	17,920	17,920
Volume that Meets Recycled Water Standards	2,503	6,027	7,464	9,628	12,375	12,885	12,885

**Table 6-3: Disposal of Wastewater (Non-Recycled) (AFY)**

Method of Disposal	Treatment Level	Fiscal Year Ending					
		2010	2015	2020	2025	2030	2035-opt
Ocean Outfall	Tertiary	7,569	7,596	9,724	4,680	4,680	4,680

### 6.3. Current Recycled Water Uses

Recycled water is considered a highly reliable water supply since it is generated from relatively constant and predictable wastewater flows that are not subject to seasonal

variations. Code Section 1210 provides that the owner of a wastewater treatment plant operated for the purpose of treating wastes from a sanitary sewer system shall hold the exclusive right to the treated waste water as against anyone who has supplied the water discharged into the waste water collection and treatment system, including a person using water under a water service contract, unless otherwise provided by agreement.

SMWD's permits for the operation of its wastewater treatment facilities addressed herein, allow only irrigation and customer uses of recycled water. Such water is not permitted to be discharged to a stream and, therefore, ownership or rights to use such water by appropriation is not possible. Consequently, SMWD owns and is entitled to sell recycled water.

SMWD owns and operates a recycled water system with three existing treatment plants, an agreement to purchase water from IRWD and a seasonal storage reservoir. Recycled water is part of SMWD's overall menu of water supplies included in this UWMP for purposes of meeting the projected water demand for existing and planned future uses.

Supplies in any given year may exceed production due to storage capabilities. The Los Alisos Water Reclamation Plant (LAWRP) supply exceeds projected demands and can also be used to supplement flows during dry years.

### **Oso Creek Water Reclamation Plant**

SMWD owns and operates the Oso Creek Wastewater Reclamation System (nondomestic system). Constructed in 1978 and upgraded in 1989, 2004 and 2007, this system includes: 1) tertiary treatment capacity of three (3) million gallons per day (mgd) in the Oso Creek Reclamation Plant; 2) the Upper Oso Reservoir; 3) a force main and distribution system for effluent disposal; and, 4) an interceptor system for low flow urban run-off waters in Oso Creek.

Recycled water from this system is used to meet centralized irrigation requirements including a golf course and community landscape areas such as major slopes, parks and school grounds. Recycled water from the Oso Plant is pumped to the Upper Oso Reservoir, a 4,000 acre-foot seasonal storage facility located in Mission Viejo; capacity is allocated 75% to SMWD and 25% to Moulton Niguel Water District (MNWD). Based on wastewater flows, the Oso Plant can produce approximately 2.0 mgd, which equates to 2,240 acre-feet per year.

### **Chiquita Water Reclamation Plant**

SMWD completed construction of an expansion of the Chiquita Water Reclamation Plant in 2005. The current secondary treatment capacity of the Plant is 9.0 mgd, (7.8 mgd is allocated to SMWD, 0.64 mgd to IRWD and 0.56 to TCWD). The expansion included

5.0 mgd of tertiary capacity to produce recycled water for irrigation uses. Additional capacity is planned to increase the total production of recycled water to 10 mgd, which is approximately 11,200 acre-feet per year by Year 2015 if seasonal storage is not constructed and by Year 2021 if seasonal storage is constructed. Expansion is included in SMWD's Five-Year Capital Improvement Program (which includes longer-term capital facilities programs).

### **Ortega Recycled Water Seasonal Storage Reservoir**

SMWD planning includes the construction of approximately 4,800 acre-feet of seasonal storage for recycled water produced from the Chiquita Plant. Geotechnical CEQA evaluation of the proposed site is underway.

Construction of a seasonal storage reservoir will allow for year-round recycled water production for use in peak irrigation demands which will increase the reliability of the recycled water supply. The proposed site is included the approved Ranch Plan, the Habitat Conservation Plan (HCP) and the Special Area Management Plan (SAMP) environmental documentation. Depending on funding, the reservoir may be operational by 2015.

### **Los Alisos Water Reclamation Plant**

SMWD entered into the Agreement by and between Los Alisos Water District and Santa Margarita Water District Relating to Interconnecting of the Districts' Nondomestic Systems whereby SMWD purchases recycled water from the Los Alisos Reclamation Plant owned and operated by Irvine Ranch Water District (IRWD) through a pipeline interconnection located in Mission Viejo. IRWD is the successor agency to the Los Alisos Water District. The agreement is included in Appendix D. Recycled water from the Los Alisos Plant is pumped to the Upper Oso Reservoir for seasonal storage. By agreement, SMWD can purchase up to 1,500 acre-feet per year from IRWD. IRWD has projected the supply to be available to SMWD through 2030. SMWD can purchase additional water on an as-available basis.

Table 6-4 below illustrates the current uses for recycled water in SMWD. The usage is limited to landscape irrigation with a tertiary treatment level.

### **Interconnection Will Increase Reliability**

The Oso/Los Alisos recycled water system is connected to the Chiquita system, thus increasing the reliability of the recycled supply throughout the SMWD service area, inc

**Table 6-4: Current Recycled Water Uses (AFY)**

User Type	Treatment Level	Fiscal Year Ending
		2010
Agriculture		
Landscape	Tertiary	6,027
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
<b>Total</b>		<b>6,027</b>

## 6.4. Potential Recycled Water Uses

### Chiquita Water Reclamation Plant Expansion

SMWD is planning to expand its Chiquita WRP tertiary capacity from 5 MGD to 10 MGD by 2015, increasing production to 11,200 AFY. The expansion will reduce SMWD’s dependency on imported water and provide recycled water for irrigation purposes. Rancho Mission Viejo (RMV) holds riparian water rights for its ranching, agriculture and tenants uses. RMV and SMWD are contemplating an agreement whereby RMV will supply water to supplement the recycled water service to areas of The Ranch Plan. The supplemental water may be utilized in event recycled water is unavailable.

Tables 6-5 and 6-6 represent projected recycled water use within SMWD’s service area through 2035. Recycled water use will increase by more than double through the 25-year period, with landscape irrigation as its sole use.

**Table 6-5: Projected Future Use of Recycled Water in Service Area (AFY)**

User Type	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Projected Use of Recycled Water	6,027	7,439	9,603	12,350	12,860	12,860

**Table 6-6: Projected Recycled Water Uses (AFY)**

User Type	Treatment Level	Fiscal Year Ending				
		2015	2020	2025	2030	2035-opt
Agriculture						
Landscape	Tertiary	7,439	9,603	12,350	12,860	12,860
Wildlife Habitat						
Wetlands						
Industrial						
Groundwater Recharge						
<b>Total</b>		<b>7,439</b>	<b>9,603</b>	<b>12,350</b>	<b>12,860</b>	<b>12,860</b>

Table 6-7 compares the recycled water use projections from SMWD’s 2005 UWMP with actual 2010 recycled water use.

**Table 6-7: Recycled Water Uses – 2005 Projections compared with 2010 Actual (AFY)**

User Type	2005 Projection for 2010	2010 Actual Use
Agriculture		
Landscape	6,101	6,027
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
<b>Total</b>	<b>6,101</b>	<b>6,027</b>

#### 6.4.1. Direct Non-Potable Reuse

SMWD currently uses water from their recycled water system for direct non-potable reuse such as landscape irrigation.

#### 6.4.2. Indirect Potable Reuse

SMWD does not have the potential for indirect potable reuse within its service area.

### 6.5. Optimization Plan

In Orange County, the majority of recycled water is used for irrigating golf courses, parks, schools, business and communal landscaping. However, future recycled water use can increase by requiring dual piping in new developments, retrofitting existing landscaped areas and constructing recycled water pumping stations and transmission

mains to reach areas far from the treatment plants. Gains in implementing some of these projects have been made throughout the county; however, the additional costs, large energy requirements, and facilities make such projects very expensive to pursue.

To optimize the use of recycled water, cost/benefit analyses must be conducted for each potential project. Once again, this brings about the discussion on technical and economic feasibility of a recycled water project requiring a relative comparison to alternative water supply options.

SMWD will conduct future cost/benefit analyses for recycled water projects, and seek creative solutions and a balance to recycled water use, in coordination with MWDOC, Metropolitan and other cooperative agencies. These include solutions for funding, regulatory requirements, institutional arrangements and public acceptance.

## 7. Future Water Supply Projects and Programs

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### 7.1. Water Management Tools

Resource optimization such as desalination to minimize the needs for imported water is led by the regional agencies in collaboration with local agencies.

With the advancement in Water Reclamation Plants and improvements in the water recycling plant process, along with efforts in reducing water waste, SMWD can meet projected demands with existing and future facilities in their distribution system.

### 7.2. Transfer or Exchange Opportunities

SMWD has actively pursued additional water supply reliability through water transfers and successfully completed water transfers in the late 1990's through the Metropolitan system. At present the future of such transfers as a reliable and cost-effective means of providing the basic supply are uncertain, however, transfer with specific purposes, such as supplementing dry year supplies can be effective. SMWD will continue to pursue water transfers as an alternative water supply and is currently working with MWDOC and other agencies to investigate possible transfers.

The Supplemental Dry Year Agreements noted in the previous section are transfer agreements that are triggered under specific conditions when supplies from Metropolitan are limited. Cucamonga Valley Water District (CVWD) and Golden State Water Company (GSWC) will utilize groundwater in lieu of taking delivery of imported water from Metropolitan. The imported water will be delivered to SMWD as summarized in Table 7-1.

**Table 7-1: Transfer and Exchange Opportunities (AFY)**

Transfer Agency	Transfer or Exchange	Short Term	Proposed Quantities	Long Term	Proposed Quantities
Cucamonga Valley Water District	Transfer	X	4,250	X	4,250
Golden State Water Company	Transfer	X	2,000		
<b>Total</b>			<b>6,250</b>		<b>4,250</b>

### **7.3. Planned Water Supply Projects and Programs**

#### **IRWD Interconnection Project**

SMWD is working with neighboring agencies to expand a permanent interconnection and pumping facilities between the IRWD potable water distribution systems. The interconnection allows up to 30 cfs of water from IRWD to the South County agencies via the Joint Transmission Main (JTM) and the Aufdenkamp Transmission Main (ATM). The current project contemplates connection to the AMP.

#### **Baker Water Treatment Plant**

The Baker Pipeline Regional Water Treatment Plant will be a new 25 MGD plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago Lateral and Irvine Lake through the Baker Pipeline. The Baker Water Treatment Plant is currently in design and is scheduled for construction in 2011 and expected to come online in Fiscal Year (FY) 2012-13. SMWD plans to take approximately 9,400 AFY from the Baker WTP.

#### **Upper Chiquita Reservoir Project**

SMWD is constructing the Upper Chiquita Reservoir with a capacity of 244 MG (750 AF), near Oso Parkway and the 241 Toll Road. The reservoir will act as a large-scale emergency potable water supply during planned or unplanned service disruptions for South Orange County agencies. Construction began in 2009 and is expected to be completed in Fall 2011.

#### **Chiquita Water Reclamation Plant Expansion**

SMWD plans on expanding their existing WRP capacity from 5 MGD to 10 MGD by 2015 increasing the total production of recycled water for landscape irrigation. A more detailed description of this project can be found in Section 6.

#### **Rancho Mission Viejo Riparian Non-Potable Water**

Rancho Mission Viejo holds riparian water rights for its ranching, agriculture and tenants uses. RMV and SMWD are contemplating an agreement whereby RMV will supply water to supplement the recycled water service to areas of The Ranch Plan. The supplemental water may be utilized in event recycled water is unavailable.

## **Cadiz Valley Water Conservation, Recovery and Storage Program**

SMWD is a partner in the Cadiz Valley Water Conservation, Recovery and Storage Project, a potential new water source from a large, renewable aquifer located in the eastern Mojave Desert in San Bernardino County.

The proposed Project would manage the aquifer and conserve water from nearby watersheds otherwise being lost to evaporation in local dry lakes. Conserved water would be collected and delivered to SMWD and other water agencies. There would also be an option for carry-over water storage in the Cadiz Aquifer.

SMWD is also exploring possibilities for a storage project that in wet years, would store water from the Colorado River Aqueduct into the Cadiz aquifer. This water could be used when needed in dry years.

If implemented, the Cadiz Project would diversify SMWD's water portfolio and help drought-proof the District to ensure its water demands are met regardless of the state's supply.

SMWD is the Lead Agency for the Project's California Environmental Quality Act (CEQA) review process. Under this environmental review, the lead agency evaluates its project and any potential environmental impacts. If alternatives are identified and mitigation measures are necessary, then they must be considered and incorporated prior to approval of the project.

SMWD released the Notice of Preparation of a Draft EIR (NOP) on February 28, 2011. SMWD held two public scoping meetings in March and the public comment period for the NOP document closed March 30, 2011. A draft EIR of the proposed project is expected to be available to the public in July or August 2011. SMWD will conduct a 45-day public review of the draft EIR immediately following its release.

The proposed Cadiz Valley Groundwater Conservation, Recovery and Storage Project would provide a new, reliable source of water to Southern California. The Project would provide up to 50,000 acre feet (1.6 billion gallons) of water, on average per year, for potable use – the amount equivalent to supplying water to 400,000 individuals for one year. Water would be delivered to SMWD and other participating water providers via the Colorado River Aqueduct delivery system. The Project also provides opportunities for carry-over storage of annual supplies to Project participants and could provide capacity for storage of imported water if needed in the future.

The proposed project would be executed in two phases:

***Conservation and Recovery Component – Phase I*** – In this first phase, a system would be constructed to capture and conserve the aquifer’s average annual recharge that would otherwise evaporate from the Bristol and Cadiz Dry Lakes. The project would construct extraction wells on the Cadiz property and a 44-mile underground water conveyance pipeline within an active railroad right-of-way that intersects with the Colorado River Aqueduct, making water delivery to the Southern California region possible. If the region experiences wet weather, SMWD has the option to decrease or forego its water delivery for that year and carry it over to another year when it may be needed. This carry-over water would be stored in the Cadiz Aquifer.

***Imported Water Storage Component – Phase II*** – A second phase of the Project contemplates storage of imported water from the Colorado River in the Cadiz aquifer system. The storage capacity of the aquifer system is estimated to be one million acre feet. In wet years, surplus water from the Colorado River could be conveyed to recharge basins on Cadiz-owned land and would percolate into the underground aquifer for storage. The water would be available for use in dry years, helping improve the region’s water supply reliability.

Cadiz Inc. owns approximately 34,000 acres of land in the Cadiz and Fenner Valleys of the Mojave Desert, located in San Bernardino County. This property is underlain by an extensive aquifer system offering natural recharge and storage capacity.

The Cadiz Valley Project will capture and utilize billions of gallons of renewable, native groundwater that is currently being lost each year to evaporation when rain and melted snow from the Fenner Valley and Orange Blossom Watersheds reach the area’s dry lakes. In addition, the Project will offer approximately one million acre feet of storage capacity that can be used to conserve – or bank – imported water, virtually eliminating the high rates of evaporative loss suffered by local surface reservoirs.

In 2010, SMWD, Three Valleys Water District, Golden State Water Company and Suburban Water Systems entered into agreements with Cadiz Inc. for the option to receive an annual water supply and for the ability to store water should the project become operational.

**Table 7-2: Specific Planned Water Supply Projects and Programs**

Project Name	Projected Start Date	Projected Completion Date	Normal-Year Supply to Agency (AF)	Single-Dry Year Yield (AF)	Multiple-Dry-Year 1 Yield (AF)	Multiple-Dry-Year 2 Yield (AF)	Multiple-Dry-Year 3 Yield (AF)
Baker Water Treatment Plant	2009	2012	9,400	9,400	9,400	9,400	9,400
Upper Chiquita Reservoir Project	2009	2011					
Chiquita WRP Expansion		2015	7,564	7,564	7,564	7,564	7,564

## 7.4. Desalination Opportunities

Until recently, seawater desalination has been considered uneconomical to be included in the water supply mix. However, recent breakthroughs in membrane technology and plant siting strategies have helped reduce desalination costs, warranting consideration among alternative resource options. However, the implementation of large-scale seawater desalination plants faces considerable challenges. These challenges include high capital and operation costs for power and membrane replacement, availability of funding measures and grants, addressing environmental issues and addressing the requirements of permitting organizations, such as the Coastal Commission. These issues require additional research and investigation.

In Orange County, there are three proposed ocean desalination projects including one that specifically that may benefit SMWD. These are the Huntington Beach Seawater Desalination Project, the South Orange Coastal Desalination Project, and the Camp Pendleton Seawater Desalination Project.

**Table 7-3: Opportunities for Desalinated Water**

Sources of Water	Check if Yes
Ocean Water	X
Brackish Ocean Water	X
Brackish Groundwater	

#### **7.4.1. Groundwater**

There are currently no brackish groundwater opportunities within SMWD's service area. SMWD is a member of SJBA and SJBA is responsible for a brackish groundwater desalination plant in the City of San Juan Capistrano. As a member agency, SMWD may consider participation in expansion of the facility.

#### **7.4.2. Ocean Water**

***Huntington Beach Seawater Desalination Project*** – Poseidon Resources LLC (Poseidon), a private company, has proposed development of the Huntington Beach Seawater Desalination Project to be located adjacent to the AES Generation Power Plant in the City of Huntington Beach along Pacific Coast Highway and Newland Street. The proposed project would produce up to 50 MGD (56,000 AFY) of drinking water and will distribute water to coastal and south Orange County to provide approximately 8% of Orange County's water supply needs. The project supplies would be distributed to participating agencies through a combination of (1) direct deliveries through facilities including the East Orange County Feeder #2 (EOCF #2), the City of Huntington Beach's distribution system, and the West Orange County Water Board Feeder #2 (WOCWBF #2), and (2) water supply exchanges with agencies with no direct connection to facilities associated with the Project.

Poseidon had received non-binding Letters of Intent (LOI) from the Municipal Water District of Orange County and 17 retail water agencies to purchase a total of approximately 72 MGD (88,000 AFY) of Project supplies. On June 23, 2009, SMWD signed a non-binding LOI for 4.5 MGD (5,000 AFY) of Project supplies.

The Project has received specific approvals from the Huntington Beach City Council, including the Coastal Development Permit, Tentative Parcel Map, Subsequent Environmental Impact Report (EIR) and Conditional Use Permit, which collectively provided for the long-term operation of the desalination facility.

In addition to final agreements with the participating agencies, the Project still needs approvals from the State Lands Commission and the California Coastal Commission before Poseidon can commence construction of the desalination facility in Huntington Beach. A public hearing on the Project before the State Lands Commission is expected as early as this October. If project receives all required permits by 2011, it could be producing drinking water for Orange County by as soon as 2013.

***South Orange Coastal Desalination Project*** – MWDOC is proposing a desalination project in joint with Laguna Beach County Water District, Moulton Niguel Water District, City of San Clemente, City of San Juan Capistrano, South Coast Water District, and Metropolitan. The project is to be located adjacent to the San Juan Creek in Dana Point just east of the transition road from PCH to the I-5. The project will provide 15

MGD (16,000 AFY) of drinking water and will provide up to 30% of its potable water supply to the participating agencies.

Phase 1 consists of drilling 4 test borings and installing monitoring wells. Phase 2 consists of drilling, constructing and pumping a test slant well. Phase 3 consists of constructing a Pilot Test Facility to collect and assess water quality. Phases 1 and 2 have been completed and Phase 3 commenced in June 2010 and will last 18 months.

If pumping results are favorable after testing, a full-scale project description and EIR will be developed. If EIR is adopted and necessary permits are approved, project could be operational by 2016.

***Camp Pendleton Seawater Desalination Project*** – San Diego County Water Authority (SDCWA) is proposing a desalination project in joint with Metropolitan to be located at Camp Pendleton Marine Corps Base adjacent to the Santa Margarita River. The initial project would be a 50 or 100 MGD plant with expansions in 50 MGD increments up to a max of 150 MGD making this the largest proposed desalination plant in the US.

The project is currently in the study feasibility stage and is conducting geological surveys to study the effect on ocean life and examining routes to bring desalination to SDCWA's delivery system. Orange County agencies are maintaining a potential interest in the project, but at this time is only doing some limited fact finding and monitoring of the project.

## 8. UWMP Adoption Process

### 8.1. Overview

Recognizing that close coordination among other relevant public agencies is the key to the success of its UWMP, SMWD worked closely with other entities such as MWDOC to develop and update this planning document. SMWD also encouraged public involvement through a holding of a public hearing to learn and ask questions about their water supply.

This section provides the information required in Article 3 of the Water Code related to adoption and implementation of the UWMP. Table 8-1 summarizes external coordination and outreach activities carried out by SMWD and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

**Table 8-1: External Coordination and Outreach**

External Coordination and Outreach	Date	Reference
Encouraged public involvement (Public Hearing)	June 3, 2011 & June 10, 2011	Appendix F
Notified city or county within supplier's service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)		Held Meetings and Issued Follow-Up letters
Held public hearing	June 22, 2011	Appendix F
Adopted UWMP	June 30, 2011	Appendix F
Submitted UWMP to DWR (no later than 30 days after adoption)	July 30, 2011	
Submitted UWMP to the California State Library and city or county within the supplier's service area (no later than 30 days after adoption)	July 30, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	August 29, 2011	

This UWMP was adopted by the Board of Directors on June 22, 2011 with an effective date of June 30, 2011. A copy of the adopted resolution is provided in Appendix F.

This section provides a description of the agencies in which the urban water supplier interacted with in the development of this UWMP, the level of interaction with each agency and the anticipated benefits of these coordination efforts. In addition, this section reviews which area, regional, watershed or basin wide plan that the urban water supplier

participated in (including name of plan and lead agency) to satisfy the requirements of §10620 (d)(1)(2) of the Water Code.

The Plan was developed by SMWD in coordination with the Municipal Water District of Orange County (MWDOC), Metropolitan Water District of Southern California (MWD), other local water purveyors, County of Orange, local cities, major landowners and homeowner associations. Table 1 lists the agencies and other groups contacted.

### **Water Agencies**

As a member agency of MWDOC, SMWD has participated in workshops, responded to data requests, and reviewed documentation provided by MWDOC concerning the availability of supply from MWD.

SMWD can obtain up to 2,000 acre-feet (AP) from the Trabuco Canyon Water District's (TCWD) Lake Forest Treatment Plant. The water is delivered to the plant by the Santiago Aqueduct Commission from MWD. SMWD requested information on the availability of the water supply from TCWD to supplement supplies. The supply has not been included as a separate source in the UWMP since the base flow is supplied to TCWD from MWD by MWDOC.

City of San Juan Capistrano (SJC) was requested to provide information on the availability of water from its Groundwater Recovery System for emergency supplies to SMWD. SMWD requested information from SJC on the availability of supplemental water supplies. Potential supplies from SJC have not been included in the UWMP.

Via a water exchange arrangement, Cucamonga Valley Water District (CVWD) will provide up to 4,250 AP annually in the event of MWD Tier 2 water shortfalls. CVWD was requested to provide information on the availability of water per the exchange agreement. CVWD has indicated by agreement it can supply Supplemental Dry Year water supply to SMWD.

Via a water exchange arrangement, Golden State Water Company (GSWC), will provide 2,000 AP in the event of MWD Tier 2 water shortfalls. GSWC was requested to provide information on the availability of water per the exchange agreement.

Irvine Ranch Water District (IRWD) will, by agreement, supply recycled water from its Los Alisos Water Reclamation Plant. SMWD requested information on the availability of the recycled water supply from IRWD.

## **Water Management Agencies**

San Juan Basin Authority (SJBA) manages the San Juan Creek Groundwater Basin which underlies much of SMWD. SJBA was requested to provide data on groundwater production and future projections.

South Orange County Wastewater Authority (SOCWA) is a joint powers authority which operates regional wastewater treatment plants. SOCWA was requested to provide data on the portion of wastewater generated by SMWD treated by SOCWA.

## **Relevant Public Agencies**

The Cities of Mission Viejo, Rancho Santa Margarita and San Clemente have land use authority within their respective boundaries overlapping a portion of SMWD's boundaries. The District has met with each city to review planning updates, if any, per Code Section 10621 (b). SMWD has Plans of Works for the areas within each city and coordinates regularly to ensure water supply availability for any proposed projects. In addition, the three cities within the jurisdiction of SMWD were provided notice of the preparation of the Plan. Copies of the letters are included in Appendix A.

The County of Orange (County) has land use authority over the unincorporated communities of Coto de Caza, Las Flores and Ladera Ranch as well as the undeveloped land owned by Rancho Mission Viejo. SMWD and the County recently completed coordination on a Water Supply Assessment for the Rancho Mission Viejo project known as The Ranch Plan which details the build-out of the project over a 20 to 25-year time frame. The District has met with the County of Orange to review planning updates, if any, per Code Section 10621 (b). SMWD has Plans of Works for the areas within the County and coordinates regularly to ensure water supply. In addition, the County was provided notice of the preparation of the Plan. A copy of the letter is included in Appendix A.

## **Homeowners Associations**

The cities and communities in SMWD are planned communities with large Homeowner Associations (HOA). HOAs control large landscaped areas and are major customers within SMWD. SMWD provided information on the water demands to the HOAs and solicited their input on conservation programs.

## **Major Landowner**

Rancho Mission Viejo (RMV) is the owner of the remaining undeveloped land within SMWD most of which is planned for development. The Ranch Plan is a master plan

development for the build-out of RMV land. SMWD has worked closely with RMV and the County on developing a water supply plan to meet future

## **8.2. Public Participation**

SMWD has encouraged community participation in its UWMP by providing notice on its website at [www.smwd.com](http://www.smwd.com). Draft copies of the UWMP were made available at SMWD's offices and on the website. Letters were sent to the homeowners associations providing notice the document was available for comment.

Notice of the SMWD Public Hearing was published in the Orange County Register on June 6 and June 13, 2011 and notice was posted on the website and in SMWD's office. The public hearing was held on June 22, 2011.

## **8.3. Agency Coordination**

All of the SMWD's water supply planning relates to the policies, rules, and regulations of its regional and local water providers. SMWD is dependent on imported water from Metropolitan through MWDOC, its regional wholesaler. SMWD is also dependent on groundwater from the San Juan Basin. In addition to imported water and groundwater supplies, SMWD incorporates into its water supply recycled water treated by IRWD. SMWD involved these aforementioned water providers in the development of its 2010 UWMP at various levels of contribution as summarized in Table 8-2.

**Table 8-2: Coordination with Appropriate Agencies**

	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
Metropolitan Water District of Southern California	X			X			
Municipal Water District of Orange County	X	X	X	X	X	X	
Cucamonga County Water District	X			X	X	X	
Golden State Water Company	X			X	X	X	
Trabuco Canyon Water District	X			X	X	X	
Irvine Ranch Water District	X			X	X	X	
City of San Juan Capistrano				X	X	X	
Moulton Niguel Water District					X	X	
South Coast Water District					X	X	
City of San Clemente					X	X	
El Toro Water District					X	X	
Inland Empire Utilities Agency						X	
San Juan Basin Authority	X			X		X	
South Orange County Wastewater				X		X	

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	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
Authority							
City of Mission Viejo				X	X	X	
City of Rancho Santa Margarita				X	X	X	
City of San Clemente				X	X	X	
County of Orange				X	X	X	
Coto De Caza Master Association						X	
Oso Greenbelt						X	
Rancho Santa Margarita						X	
Las Flores Maintenance Corporation						X	
Talega						X	
Ladera Ranch						X	
Mission Viejo Environmental						X	
Mission Viejo Lake Association						X	
Casta Del Sol						X	
Rancho Mission Viejo	X			X	X	X	

## **8.4. UWMP Submittal**

### **8.4.1. Review of Implementation of 2005 UWMP**

As required by California Water Code, SMWD summarizes the implementation of the Water Conservation and Water Recycling Programs to date, and compares the implementation to those as planned in its 2005 UWMP.

#### **Comparison of 2005 Planned Water Conservation Programs with 2010 Actual Programs**

SMWD recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. SMWD is not a California Urban Water Conservation Council (CUWCC) signatory; however, it is currently implementing all 14 DMMs described in the Act. DMMs as defined by the Act correspond to the CUWCC's Best Management Practices (BMPs). For SMWD's specific achievements in the area of conservation, please see Section 4 of this Plan.

#### **Comparison of 2005 Projected Recycled Water Use with 2010 Actual Use**

Current recycled water projections for SMWD in 2010 are about 1% less than previously forecasted for 2010 in the 2005 UWMP, as illustrated in Table 6-7.

### **8.4.2. Filing of 2010 UWMP**

The Board of Directors reviewed the Final Draft Plan on June 22, 2011. The five-member Board of Directors approved the 2010 UWMP on effective June 30, 2011. See Appendix G for the resolution approving the Plan.

By July 30, 2011, SMWD's Adopted 2010 UWMP was filed with DWR, California State Library, County of Orange, and cities within its service area.