



2015

URBAN WATER MANAGEMENT PLAN

FINAL

JULY 2016



2015 URBAN WATER MANAGEMENT PLAN

City of San Juan Capistrano

FINAL

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Date:

July 2016

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- H AWWA Water Loss Audit Worksheet
- I Water Use Efficiency Implementation Report
- J CUWCC BMP Report

ACRONYMS AND ABBREVIATIONS

20x2020	20% Water Use Reduction in GPCD by Year 2020
Act	Urban Water Management Planning Act
AF	Acre-Feet
AFY	Acre-Feet per Year
AMI	Advanced Metering Infrastructure
AMR	Automatic Meter Reading
AWWA	American Water Works Association
San Juan Basin	San Juan Groundwater Basin
Biops	Biological Opinions
BMP	Best Management Practice
CCC	California Coastal Commission
CCF	Hundred Cubic Feet
CDR	Center for Demographic Research
CEQA	California Environmental Quality Act
CFS	Cubic Feet per Second
CII	Commercial/Industrial/Institutional
City	City of San Juan Capistrano
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVWD	Capistrano Valley Water District
Delta	Sacramento-San Joaquin River Delta
DMM	Demand Management Measure
DOF	Department of Finance
DVL	Diamond Valley Lake
DWR	Department of Water Resources
EBSD	Emerald Bay Services District
EIR	Environmental Impact Report
ETo	Evapotranspiration
FY	Fiscal Year
GAC	Granulated Activated Carbon
GPCD	Gallons per Capita per Day
GWMFP	Groundwater Management and Facilities Plan
GWRP	Groundwater Recovery Plant
HECW	High Efficiency Clothes Washers
HET	High Efficiency Toilet
IPR	Indirect Potable Reuse
IRP	Integrated Water Resources Plan
IWA	International Water Association

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Latham	J.B. Latham Treatment Plant
LBCWD	Laguna Beach County Water District
LRP	Local Resources Program
LTFP	Long-Term Facilities Plan
MAF	Million Acre-Feet
MAFY	Million Acre-Feet per Year
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
MNWD	Moulton Niguel Water District
MGD	Million Gallons per Day
MHI	Median Household Income
MTBE	Methyl Tertiary Butyl Ether
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
OC	Orange County
OCWD	Orange County Water District
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCWD	South Coast Water District
SDCWA	San Diego County Water Authority
SDP	Seawater Desalination Program
SJBA	San Juan Basin Authority
SMWD	Santa Margarita Water District
SOCWA	South Orange County Wastewater Authority
Study	Colorado River Basin Water Supply and Demand Study
SWP	State Water Project
SWRCB	California State Water Resources Control Board
TDS	Total Dissolved Solids
UWMP	Urban Water Management Plan
WBIC	Weather-Based Irrigation Controller
WEROC	Water Emergency Response Organization of Orange County
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management

1 INTRODUCTION

1.1 Urban Water Management Plan Requirements

Water Code Sections 10610 through 10656 of the Urban Water Management Planning Act (Act) require every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet (AF) of water annually to prepare, adopt, and file an Urban Water Management Plan (UWMP) with the California Department of Water Resources (DWR) every five years in the years ending in zero and five. The 2015 UWMP updates are due to DWR by July 1, 2016.

This UWMP provides DWR with a detailed summary of the present and future water resources and demands within the City of San Juan Capistrano's (City) service area and assesses the City's water resource needs. Specifically, the UWMP provides water supply planning for a 25-year planning period in five-year increments and identifies water supplies needed to meet existing and future demands. The demand analysis must identify supply reliability under three hydrologic conditions: a normal year, a single-dry year, and multiple-dry years. The City's 2015 UWMP updates the 2010 UWMP in compliance with the requirements of the Act as amended in 2009, and includes a discussion of:

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

Since the original Act's passage in 1983, several amendments have been added. The most recent changes affecting the 2015 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. SBx7-7, or the Water Conservation Act of 2009, is part of the Delta Action Plan that stemmed from the Governor's goal to achieve a 20 percent statewide reduction in urban per capita water use by 2020 (20x2020). Reduction in water use is an important part of this plan that aims to sustainably manage the Sacramento-San Joaquin River Delta and reduce conflicts between environmental conservation and water supply; it is detailed in Section 3.2.2. SBx7-7 requires each urban retail water supplier to develop urban water use targets to achieve the 20x2020 goal and the interim ten percent goal by 2015. Each urban retail water supplier must include in its 2015 UWMPs the following information from its target-setting process:

- Baseline daily per capita water use
- 2020 Urban water use target

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- 2015 Interim water use target compliance
- Compliance method being used along with calculation method and support data
- An implementation plan to meet the targets

The other recent amendment, made to the UWMP on September 19, 2014, is set forth by SB 1420, Distribution System Water Losses. SB 1420 requires water purveyors to quantify distribution system losses for the most recent 12-month period available. The water loss quantification is based on the water system balance methodology developed by the American Water Works Association (AWWA).

The sections in this UWMP 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 the City’s water utility. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included in Appendix A. This is an individual UWMP for a retail agency, as shown in Tables 1-1 and 1-2. Table 1-2 also indicates the units that will be used throughout this document.

Table 1-1: Plan Identification

Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input checked="" type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	Orange County 20x2020 Regional Alliance
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

Table 1-2: Agency Identification

Agency Identification	
Type of Agency	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year	
<input type="checkbox"/>	UWMP Tables Are in Calendar Years
<input checked="" type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP	
Unit	AF
NOTES:	

1.2 Agency Overview

The City provides domestic and non-domestic water service to residential, commercial and industrial customers within the City. The City also provides water service to small areas within the Cities of Dana Point and Mission Viejo.

The City is governed by a five-member City Council elected by the public to four-year terms. Council Member terms are “overlapped”, meaning that each election fills either two or three open seats. The City’s Mayor and Mayor pro tem are selected at the first meeting of each December to serve a one-year term. These positions are filled by sitting Council Members by a vote of the majority of members. The current Council Members are:

- Pam Patterson, Mayor
- Kerry K. Ferguson, Mayor Pro Tem
- Sam Allevato
- John Perry
- Derek Reeve

In 2001 the City annexed the Capistrano Valley Water District (CVWD), which was the successor agency to the Orange County Water Works District No. 4. In 2003 CVWD was dissolved and the City took over full operations of the CVWD.

Upon its formation CVWD had inherited some of the obligations, property, and water rights of several small water purveyors that had formerly operated within its boundary. These included the Capistrano Mesa Water Company, Capistrano Heights Water Company, Capistrano Water Company and Trabuco Water Company. CVWD took over service to the areas formerly served by these water companies in the course of residential home development. In the course of tract development the water rights owned by the tract under development was assigned to CVWD in the tract and parcel maps. The City does not currently incorporate any of the facilities constructed or used by these companies. The City's system was constructed by the City or its direct predecessors – CVWD and Orange County Water District (OCWD) #4.

The City used only groundwater until 1965 when imported water became available. Since that time, groundwater use varied from 10 percent to 60 percent until the City's Groundwater Recovery Plant (GWRP) came on line in December of 2004

The City receives its water from two main sources, the local well water from San Juan Groundwater Basin (San Juan Basin) and imported water from MWDOC. MWDOC is Orange County's wholesale supplier and is a member agency of Metropolitan. The City's location is shown on Figure 1-1.

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Figure 1-1: Regional Location of Urban Water Supplier

1.3 Service Area and Facilities

1.3.1 City of San Juan Capistrano Service Area

The City's service area is made up of primarily of residential development and open space with small areas dedicated to commercial, agricultural and public/institutional use. The City is the site of the oldest settlement in Orange County, and is proud of its strong roots in its Spanish, Mexican and early Californian heritage. The area attracts tourists and visitors to its ocean views, historic landmarks and the many cultural events and activities that are sponsored year round.

The City has been primarily developed in the sub-basins of the San Juan Groundwater Basin adjacent to the San Juan and Trabuco Creeks, which trisect the area. Surrounding the valley to the north, west and east are the coastal foothills that reach elevations of up to 880 feet above sea level. The San Diego Freeway (Interstate 5), which is the primary route between San Diego and Los Angeles, traverses the length of the City. Other major transportation arteries include Ortega Highway (State Highway 74) and Pacific Coast Highway (State Highway 1). The Metrolink and Amtrak rail line between Los Angeles and San Diego also passes through the City. A well-used passenger station with regularly scheduled stops is located just southwest of the Mission San Juan Capistrano.

The City is situated in Orange County, approximately 60 miles south of Los Angeles and one-half mile inland from the Pacific Ocean within a scenic coastal valley. The water service boundary covers an area of approximately 14.0 square miles mostly within the corporate boundaries of the City. The City service area extends into the northeastern portion of the City of Dana Point, an area of approximately 0.40 square miles. A map of the City along with the water service area boundaries are shown on Figure 1-2.

1.3.2 City of San Juan Capistrano Water Facilities

The City has ten reservoirs, eight active pump stations (three decommissioned pump stations); two imported water connections, five emergency interconnections, and one domestic well. The City also operates a 6.2 million gallons per day (MGD) GWRP.

The system connections and water volume supplied are summarized in Table 1-3, and the wholesalers informed of this water use as required are displayed in Table 1-4.

Table 1-3: Public Water Systems

Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (AF)
CA3010030	City of San Juan Capistrano	11,474	8,531
TOTAL		11,474	8,531
NOTES:			

Table 1-4: Water Supplier Information Exchange

Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
MWDOC
NOTES:

2 DEMANDS

2.1 Overview

Since the last UWMP update, southern California's urban water demand has been largely shaped by the efforts to comply with SBx7-7. This law requires all California retail urban water suppliers serving more than 3,000 acre-feet per year (AFY) or 3,000 service connections to achieve a 20 percent water demand reduction (from a historical baseline) by 2020. The City has been actively engaged in efforts to reduce water use in its service area to meet the 2015 interim 10 percent reduction and the 2020 final water use target. Meeting this target is critical to ensure the City's eligibility to receive future state water grants and loans.

In April 2015 Governor Brown issued an Emergency Drought Mandate as a result of one of the most severe droughts in California's history, requiring a collective reduction in statewide urban water use of 25 percent by February 2016, with each agency in the state given a specific reduction target by DWR. In response to the Governor's mandate, the City is carrying out more aggressive conservation efforts. It is also implementing higher (more restrictive) stages of its water conservation ordinance in order to achieve its demand reduction target of 28 percent (discussed later in Section 2.5).

In addition to local water conservation ordinances, the City has partnered with MWDOC on educational programs, indoor retrofits and training. These efforts have been part of statewide water conservation ordinances that require limited landscape watering, serving water in restaurants and bars only when requested, and reducing the amount of laundry cleaned by hotels. Further discussion on the City's water conservation ordinance is covered in Section 5 Water Supplies Contingency Plan.

This section analyzes the City's current water demands by customer type, factors that influence those demands, and projections of future water demands for the next 20 years. In addition, to satisfy SBx7-7 requirements, this section provides details of the City's SBx7-7 compliance method selection, baseline water use calculation, and 2015 and 2020 water use targets.

2.2 Factors Affecting Demand

Water demands within the City's service area are dependent on many factors such as local climate conditions and the evolving hydrology of the region, demographics, land use characteristics, and economics. In addition to local factors, southern California's imported water sources are also experiencing drought conditions that impact availability of current and future water supplies.

2.2.1 Climate Characteristics

The City is located within the South Coast Air Basin (SCAB) that encompasses all of Orange County, and the urban areas of Los Angeles, San Bernardino, and Riverside counties. The SCAB climate is characterized by southern California's "Mediterranean" climate: a semi-arid environment with mild winters, warm summers and moderate rainfall.

Local rainfall has limited impacts on reducing demand for the City. Water that infiltrates into the soil may enter groundwater supplies depending on the local geography. However, due to the large extent of impervious cover in southern California, rainfall runoff quickly flows to a system of concrete storm drains and channels that lead directly to the ocean. OCWD is one agency that has successfully captured stormwater along the Santa Ana River and in recharge basins for years and used it as an additional source of supply for groundwater recharge.

Metropolitan's water supplies come from the State Water Project (SWP) and the Colorado River Aqueduct (CRA), influenced by climate conditions in northern California and the Colorado River Basin, respectively. Both regions have been suffering from multi-year drought conditions with record low precipitation which directly impact water supplies to southern California.

2.2.2 Demographics

The City has a 2015 population of 39,047 according to the California State University at Fullerton's Center for Demographic Research (CDR). The City is not quite built-out with small areas of open land still available, and its population is projected to increase 7.9 percent by 2040, representing an average growth rate of less than one percent per year.

Projected growth has increased slightly since the 2010 UWMP while housing is becoming denser and new residential units are multi-storied. Table 2-1 shows the population projections in five-year increments out to 2040 within the City's service area.

Table 2-1: Population – Current and Projected

Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040
	39,047	41,991	42,026	42,132	42,162	42,119
NOTES:						

2.2.3 Land Use

The City's service area can best be described as a predominately residential single and multi-family community located along the coast in south Orange County.

The City's latest General Plan was adopted in December 1999 and amended in May 2002. The General Plan defines the various land uses within the City, which is predominantly residential development. Commercial land use is typical along Camino Capistrano and Ortega Highway, the central downtown area, and in isolated pockets along Rancho Viejo Road. Future development is planned to occur in the foothills to the east and consist primarily of estate and low density residential uses. The City occasionally updates its General Plan through amendments. See attached latest Resolution approving amendment and list of amendments since original adoption.

The City's service area includes a small portion of the City of Dana Point, about three percent of total demand. Land uses within Dana Point, served by the City is also predominantly residential with a small pocket of strip commercial located near Del Obispo and Stonehill Drive. This area of Dana Point has very little undeveloped land. Future development is anticipated to occur through in-fill, and on frontage land along the San Juan Creek in the form of small industrial businesses.

2.3 Water Use by Customer Type

An agency’s water consumption can be projected by understanding the type of use and customer type creating the demand. Developing local water use profiles helps to identify when, where, how, quantity of water used, and by whom within the agency’s service area. A comprehensive profile of the agency’s service area enables the impacts of water conservation efforts to be assessed and to project the future benefit of water conservation programs.

The following sections of this UWMP provide an overview of the City’s water consumption by customer account type as follows:

- Single-family Residential
- Multi-family Residential
- Commercial/Institutional/ Government
- Dedicated Landscape

Other water uses including sales to other agencies and non-revenue water are also discussed in this section.

2.3.1 Overview

There are 11,474 current customer active and inactive service connections in the City’s water distribution system with all existing connections metered. Approximately 61 percent of the City’s potable water demand is residential, while commercial, industrial and governmental accounts for 9 percent of the potable demand.

Table 2-2 contains a summary of the City’s total water demand in fiscal year (FY) 2014-15 for potable water volumes.

Table 2-2: Demands for Potable and Raw Water - Actual (AF)

Retail: Demands for Potable and Raw Water - Actual			
Use Type	2015 Actual		
	Additional Description	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	3,784
Multi-Family		Drinking Water	1,128
Commercial	Includes Governmental, Institutional, and Industrial	Drinking Water	751
Landscape		Drinking Water	1,677
Other		Drinking Water	222
Losses		Drinking Water	467
TOTAL			8,029
NOTES:			

2.3.2 Non-Residential

Non-residential use includes commercial, industrial, governmental and institutional water demands that accounts for 10 percent of the potable demand, while dedicated landscape water use accounts for 20 percent. The City has a mix of commercial uses (markets, restaurants, etc.), public entities (schools, fire stations and government offices), and office complexes.

2.3.3 Sales to Other Agencies

The City does not sell water to other agencies.

2.3.4 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, firefighting, 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).

A water loss audit was conducted per AWWA methodology for the City to understand the relation between water loss and revenue losses. This system was developed by the IWA Water Loss Task Force as a universal methodology that could be applied to any water distribution system. This audit meets SB 1420 that was signed into law in September 2014. Understanding and controlling water loss from a distribution system is an effective way for the City to achieve regulatory standards and manage their existing resources.

Table 2-3 below is a result of the AWWA Water Audit completed for the City and the 2015 UWMP. The water loss summary was calculated over a one-year period from available data and the methodology explained above. The volume of water loss calculated for this period represents 11.9 percent of the City's annual water supplied, this presents an opportunity to identify areas of high water loss and develop strategies to minimize it.

Table 2-3: Water Loss Audit Summary (AF)

Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss
07/2014	881
NOTES:	

2.4 Demand Projections

Demand projections were developed by MWDOC for each agency within their service area based on available data as well as land use, population and economic growth. Three trajectories were developed representing three levels of conservation: 1) continued with existing levels of conservation (lowest conservation), 2) addition of future passive measures and active measures (baseline conservation), and 3) aggressive turf removal program - 20 percent removal by 2040 (aggressive conservation). The

baseline demand projection was selected for the 2015 UWMP. The baseline scenario assumes the implementation of future passive measures affecting new developments, including the Model Water Efficient Landscape, plumbing code efficiencies for toilets, and expected plumbing code for high-efficiency clothes washers. It also assumes the implementation of future active measures, assuming the implementation of Metropolitan incentive programs at historical annual levels seen in Orange County.

2.4.1 Demand Projection Methodology

The water demand projections were an outcome of the Orange County (OC) Reliability Study led by MWDOC where demand projections were divided into three regions within Orange County: Brea/La Habra, Orange County Groundwater Basin, and South County. The demand projections were obtained based on multiplying a unit water use factor and a demographic factor for three water use sectors, including single-family and multi-family residential (in gallons per day per household), and non-residential (in gallons per day per employee). The unit water use factors were based on the survey of Orange County water agencies (FY 2013-14) and represent a normal weather, normal economy, and non-drought condition. The demographic factors are future demographic projections, including the number of housing units for single and multi-family residential sectors and the total employment (number of employees) for the non-residential sector, as provided by CDR.

The OC Reliability Study accounted for drought impacts on 2016 demands by applying the assumption that water demands will bounce back to 85 percent of 2014 levels i.e. pre-drought levels by 2020 and 90 percent by 2025 without future conservation, and continue at 90 percent of unit water use through 2040. The unit water use factor multiplied by a demographic factor yields demand projections without new conservation. To account for new conservation, projected savings from new passive and active conservation through the implementation of the plumbing codes, model water efficient landscape ordinance, and rebate programs from Metropolitan were subtracted from these demands.

As described above, the OC Reliability Study provided demand projections for three regions within Orange County: Brea/La Habra, Orange County Groundwater Basin, and South County. The City's water demand represents a portion of the South County region total demand. The City's portion was estimated as the percentage of the City's five-year (FY 2010-11 to FY 2014-15) average usage compared to the South County region total demand for the same period.

2.4.2 Agency Refinement

Demand projections were developed by MWDOC for the City as part of the OC Reliability Study. The future demand projections were reviewed and accepted by the City as a basis for the 2015 UWMP.

2.4.3 25 Year Projections

A key component of the 2015 UWMP is to provide insight into the City's future water demand outlook. The City's current total potable water demand is 8,029 AFY, met through local groundwater and purchased imported water from MWDOC. Table 2-4 is a projection of the City's potable water demands for the next 25 years.

Table 2-4: Demands for Potable and Raw Water - Projected (AF)

Retail: Demands for Potable and Raw Water - Projected						
Use Type	Additional Description	Projected Water Use				
		<i>Report To the Extent that Records are Available</i>				
		2020	2025	2030	2035	2040
Single Family		3,402	3,402	3,402	3,402	3,402
Multi-Family		1,014	1,014	1,014	1,014	1,014
Commercial	Includes Governmental, Institutional, and Industrial	675	675	675	675	675
Landscape		1,508	1,508	1,508	1,508	1,508
Other		200	200	200	200	200
Losses		420	420	420	420	420
TOTAL		7,218	7,218	7,218	7,218	7,218
NOTES:						

The above demand values were provided by MWDOC and reviewed by the City as part of the UWMP effort. As the regional wholesale supplier of Orange County, MWDOC works in collaboration with each of its retail agencies as well as Metropolitan, its wholesaler, to develop demand projections for imported water. The City will aim to decrease its reliance on imported water by pursuing a variety of water conservation strategies, the City's per capita water use is projected to decrease as detailed in section 2.5 below. Table 2-5 displays the inclusion of future water savings in water use projections.

Table 2-5: Inclusion in Water Use Projections

Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections?	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	Section 4.1
Are Lower Income Residential Demands Included In Projections?	Yes
NOTES:	

The demand data presented in this section accounts for passive savings in the future. Passive savings are water savings as a result of Codes, Standards, Ordinances, or Transportation and Land Use Plans as well as public outreach on water conservation and higher efficiency fixtures. Passive savings are anticipated to continue for the next 25 years and will result in continued water saving and reduced consumption levels.

2.4.4 Total Water Demand Projections

Based on the information provided above, the total demand for potable water is listed below in Table 2-6 below. The City has no plans supplement demand with recycled water.

Table 2-6: Total Water Demands (AF)

Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040
Potable and Raw Water	8,029	7,218	7,218	7,218	7,218	7,218
Recycled Water Demand	502	1,400	1,470	1,470	1,470	1,470
TOTAL WATER DEMAND	8,531	8,618	8,688	8,688	8,688	8,688
NOTES:						

2.4.5 Water Use for Lower Income Households

Since 2010, the UWMP Act has required retail water suppliers to include water use projections for single-family and multi-family residential housing for lower income and affordable households. This will assist the City in complying with the requirement under Government Code Section 65589.7 granting priority for providing water service to lower income households. A lower income household is defined as a household earning below 80 percent of the median household income (MHI).

DWR recommends retail suppliers rely on the housing elements of city or county general plans to quantify planned lower income housing with the City's service area (DWR, 2015 UWMP Guidebook, February 2016). The Regional Housing Needs Assessment (RHNA) assists jurisdictions in updating general plan's housing elements section. The RHNA identifies housing needs and assesses households by income level for the City through 2010 decennial Census and 2005-2009 American Community Survey data. The fifth cycle of the RHNA covers the planning period of October 2013 to October 2021. The Southern California Association of Governments (SCAG) adopted the RHNA Allocation Plan for this cycle on October 4, 2012 requiring housing elements updates by October 15, 2013. The California Department of Housing and Community Development reviewed the housing elements data submitted by jurisdictions in the SCAG region and concluded the data meets statutory requirements for the assessment of current housing needs.

The housing elements from the RHNA includes low income housing broken down into three categories: extremely low (less than 30 percent MHI), very low (31 percent - 50 percent MHI), and lower income (51 percent - 80 percent MHI). The report gives the household distribution for all households of various income levels in the City which can be seen in Table 2-7. Altogether the City has 30.67 percent low income housing (SCAG, RHNA, November 2013).

Table 2-7: Household Distribution Based on Median Household Income

Number of Households by Income	
Extremely Low Income	1,630
Very Low Income	1,142
Lower Income	2,492
Moderate Income	2,493
Above Income	9,407
Total Households	17,164

Table 2-8 provides the projected water needs for low income single family and multifamily units. The projected water demands shown here represent 30.67 percent of the projected water demand for the single-family and multifamily categories provided in Table 2-4 above. For example, the total low income residential demand is projected to be 1,043 AFY in 2020 and in 2040.

Table 2-8: Projected Water Demands for Housing Needed for Low Income Households (AF)

Water Use Sector	Fiscal Year Ending				
	2020	2025	2030	2035	2040
Total Residential Demand	4,416	4,416	4,416	4,416	4,416
SF Residential Demand-Low Income Households	1,043	1,043	1,043	1,043	1,043
MF Residential Demand-Low Income Households	311	311	311	311	311
Total Low Income Households Demand	1,354	1,354	1,354	1,354	1,354

2.5 SBx7-7 Requirements

SBx7-7, signed into law on February 3, 2010, requires the State of California to reduce urban water use by 20 percent by the year 2020. The City must determine baseline water use during their baseline period and water use targets for the years 2015 and 2020 to meet the state’s water reduction goal. The City may choose to comply with SBx7-7 individually or as a region in collaboration with other retail water suppliers in Orange County. Under the regional compliance option, the City is still required to report its individual water use targets. The City is required to be in compliance with SBx7-7 either individually or as part of the alliance, or demonstrate they have a plan or have secured funding to be in compliance, in order to be eligible for water related state grants and loans on or after July 16, 2016.

For the 2015 UWMP, the City must demonstrate compliance with its 2015 water use target to indicate whether or not they are on track to meeting the 2020 water use target. The City also revised their baseline per capita water use calculations using 2010 U.S. Census data. Changes in the baseline calculations also result in updated per capita water use targets.

DWR also requires agencies to submit SBx7-7 Verification Forms, a set of standardized tables to demonstrate compliance with the Water Conservation Act in this 2015 UWMP.

2.5.1 Baseline Water Use

The baseline water use is the City's gross water use divided by its service area population, reported in gallons per capita per day (GPCD). Gross water use is a measure of water that enters the distribution system of the supplier over a 12-month period with certain allowable exclusions. These exclusions are:

- Recycled water delivered within the service area
- Indirect recycled water
- Water placed in long term storage
- Water conveyed to another urban supplier
- Water delivered for agricultural use
- Process water

Water suppliers must report baseline water use for two baseline periods, the 10- to 15-year baseline (baseline GPCD) and the five-year baseline (target confirmation) as described below.

2.5.1.1 Ten to 15-Year Baseline Period (Baseline GPCD)

The first step to calculating the City's water use targets is to determine its base daily per capita water use (baseline water use). This baseline water use is essentially the City's gross water use divided by its service area population, reported in GPCD. The baseline water use is calculated as a continuous (rolling) 10-year average during a period, which ends no earlier than December 31, 2004 and no later than December 31, 2010. Water suppliers whose recycled water made up 10 percent or more of their 2008 retail water delivery can use up to a 15-year average for the calculation. Recycled water use was less than 10 percent of the City's retail delivery in 2008; therefore, a 10-year baseline period is used.

The City's baseline water use is 229 GPCD, obtained from the 10-year period July 1, 1999 to June 30, 2009.

2.5.1.2 Five-Year Baseline Period (Target Confirmation)

Water suppliers are required to calculate water use, in GPCD, for a five-year baseline period. This number is used to confirm that the selected 2020 target meets the minimum water use reduction requirements. Regardless of the compliance option adopted by the City, it will need to meet a minimum water use target of 5 percent reduction from the five-year baseline water use. This five-year baseline water use is calculated as a continuous five-year average during a period, which ends no earlier than

December 31, 2007 and no later than December 31, 2010. The City's five-year baseline water use is 229 GPCD, obtained from the five-year period July 1, 2003 to June 30, 2008.

2.5.1.3 Service Area Population

The City's service area boundaries correspond with the boundaries for a city or census designated place. This allows the City to use service area population estimates prepared by the Department of Finance (DOF). The CDR is the entity that compiles population data for Orange County based on DOF data. The calculation of the City's baseline water use and water use targets in the 2010 UWMP was based on the 2000 U.S. Census population numbers obtained from CDR. The baseline water use and water use targets in this 2015 UWMP have been revised based on the 2010 U.S. Census population obtained from CDR in 2012.

2.5.2 SBx7-7 Water Use Targets

In the 2015 UWMP, the City may update its 2020 water use target by selecting a different target method than what was used in 2010. The target methods and determination of the 2015 and 2020 targets are described below.

2.5.2.1 SBx7-7 Target Methods

DWR has established four target calculation methods for urban retail water suppliers to choose from. The City 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 percent reduction from the baseline by 2020 and 10 percent 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 commensurate with the Model Landscape Ordinance
 - 10 percent reduction in baseline commercial/industrial/institutional (CII) water use
- *Option 3* is to achieve 95 percent 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 baseline GPCD:
 - Total savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

With MWDOC's assistance in the calculation of the City's base daily per capita use and water use targets, the City selected to comply with Option 1 consistent with the option selected in 2010.

2.5.2.2 2015 and 2020 Targets

Under Compliance Option 1, the simple 20 percent reduction, the City’s 2015 target is 206 GPCD and the 2020 target is 183 GPCD as summarized in Table 2-9. The 2015 target is the midway value between the 10-year baseline and the confirmed 2020 target. In addition, the confirmed 2020 target needs to meet a minimum of 5 percent reduction from the five-year baseline water use.

Table 2-9: Baselines and Targets Summary

Baselines and Targets Summary					
<i>Retail Agency</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1999	2008	229	206	183
5 Year	2003	2007	229		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

Table 2-10 compares the City’s 2015 water use target to its actual 2015 consumption. Based on this comparison, the City is in compliance with its 2015 interim target and is on track to meeting the 2020 water use target.

Table 2-10: 2015 Compliance

2015 Compliance		
<i>Retail Agency</i>		
Actual 2015 GPCD*	2015 Interim Target GPCD*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
184	206	Yes
*All values are in Gallons per Capita per Day (GPCD)		
NOTES:		

2.5.3 Regional Alliance

A retail supplier may choose to meet the SBx7-7 targets on its own or it may form a regional alliance with other retail suppliers to meet the water use target as a region. Within a Regional Alliance, each retail water supplier will have an additional opportunity to achieve compliance under both an individual target and a regional target.

- If the Regional Alliance meets its water use target on a regional basis, all agencies in the alliance are deemed compliant.

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- If the Regional Alliance fails to meet its water use target, each individual supplier will have an opportunity to meet their water use targets individually.

The City is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC, its wholesaler. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2015 UWMP. MWDOC provides assistance in the calculation of each retail agency's baseline water use and water use targets.

In 2015, the regional baseline and targets were revised to account for any revisions made by the retail agencies to their individual 2015 and 2020 targets. The regional water use target is the weighted average of the individual retail agencies' targets (by population). The Orange County 20x2020 Regional Alliance weighted 2015 target is 176 GPCD and 2020 target is 158 GPCD. The actual 2015 water use in the region is 125 GPCD, i.e. the region has already met its 2020 GPCD goal.

3 WATER SOURCES AND SUPPLY RELIABILITY

3.1 Overview

The City relies on a combination of imported water, local groundwater, and recycled water to meet its demands. The City works with two primary agencies, Metropolitan and MWDOC, to ensure a safe and reliable water supply that will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include the Colorado River and the SWP provided by Metropolitan and delivered through MWDOC.

The City's current main source of water supply in FY 2014-15 was imported water purchased from MWDOC through Metropolitan, accounting for approximately 64 percent of the City's water supply portfolio. The groundwater supply will be a major component in the City's water supply portfolio going forward with water supply projections estimated for the worst three year drought, depicting the lowest projected groundwater yields. The City's future water supply portfolio is displayed on Figure 3-1.

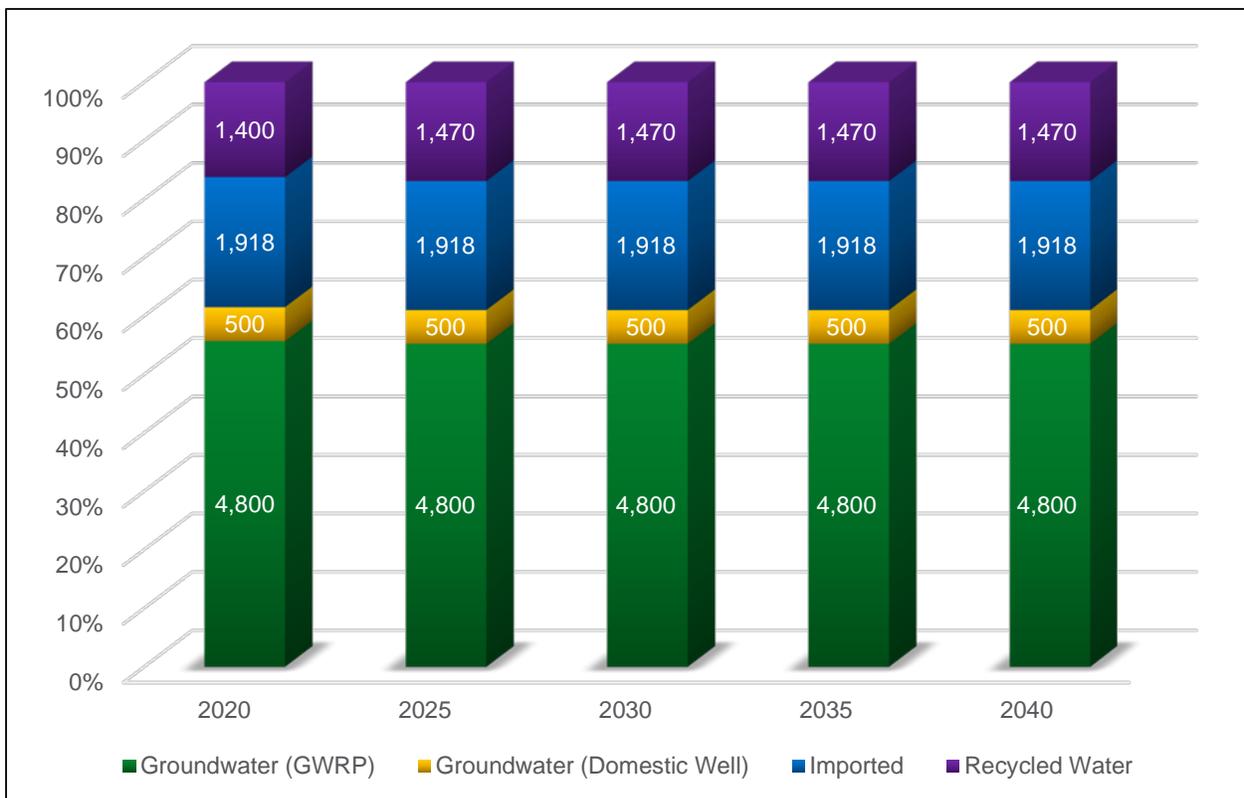


Figure 3-1: Water Supply Sources in the City (AF)

The following sections provide a detailed discussion of the City's water sources as well as the future water supply portfolio for the next 25 years. Additionally, the City's projected supply and demand under various hydrological conditions are compared to determine the City's supply reliability for the 25 year planning horizon.

3.2 Imported Water

The City supplements its local groundwater with imported water purchased from Metropolitan through MWDOC. Metropolitan's principal sources of water are the Colorado River via the CRA and the Lake Oroville watershed in Northern California through the SWP. The raw water obtained from these sources is, for Orange County, 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. Imported water is conveyed to the City through the East Orange County Feeder #2, Joint Regional Water Supply System Transmission Main, and the Eastern Transmission Main. The City's Master Meter is located at the terminus of the Eastern Transmission Main and has a capacity of 15 cubic feet per second (cfs). The City also has a capacity right of 4.9 cfs at the South County Pipeline and has the option to purchase up to an additional 5.1 cfs capacity in the future for a total of 10 cfs.

3.2.1 Colorado River Supplies

The Colorado River was Metropolitan's original source of water after Metropolitan's establishment in 1928. The CRA, which is owned and operated by Metropolitan, transports water from the Colorado River to its terminus at Lake Mathews in Riverside County. The actual amount of water per year that may be conveyed through the CRA to Metropolitan's member agencies is subject to the availability of Colorado River water for delivery.

The CRA includes supplies from the implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies to urban uses. The 2003 QSA enabled California to implement major Colorado River water conservation and transfer programs, stabilizing water supplies for 75 years and reducing the state's demand on the river to its 4.4 million acre-feet (MAF) entitlement. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis. Water from the Colorado River or its tributaries is available to users in California, Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, as well as to Mexico. California is apportioned the use of 4.4 MAF of water from the Colorado River each year plus one-half of any surplus that may be available for use collectively in Arizona, California, and Nevada. In addition, California has historically been allowed to use Colorado River water apportioned to but not used by Arizona or Nevada. Metropolitan has a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY when the following conditions exist (Metropolitan, 2015 UWMP, June 2016):

- Water unused by the California holders of priorities 1 through 3
- Water saved by the Palo Verde land management, crop rotation, and water supply program
- When the U.S. Secretary of the Interior makes available either one or both:
 - Surplus water is available
 - Colorado River water is apportioned to but unused by Arizona and/or Nevada

Unfortunately, Metropolitan has not received surplus water for a number of years. The Colorado River supply faces current and future imbalances between water supply and demand in the Colorado River

Basin due to long term drought conditions. Over the past 16 years (2000-2015), there have only been three years when the Colorado River flow has been above average (Metropolitan, 2015 UWMP, June 2016). The long-term imbalance in future supply and demand is projected to be approximately 3.2 MAF by the year 2060.

Approximately 40 million people rely on the Colorado River and its tributaries for water with 5.5 million acres of land using Colorado River water for irrigation. Climate change will also affect future supply and demand as increasing temperatures may increase evapotranspiration (ET_o) from vegetation along with an increase in water loss due to evaporation in reservoirs, therefore reducing the available amount of supply from the Colorado River and exacerbating imbalances between increasing demands from rapid growth and decreasing supplies.

The Colorado River Basin Water Supply and Demand Study (Study) assessed the historical water supply in the Colorado River Basin and discovered the following findings:

- Increased temperatures in both the Upper and Lower Colorado River Basins since the 1970s has been observed.
- Loss of springtime snowpack was observed with consistent results across the lower elevation northern latitudes of the western United States. The large loss of snow at lower elevations strongly suggest the cause is due to shifts in temperature.
- The deficit between the two year running average flow and the long-term mean annual flow that started in the year 2000 is more severe than any other deficit in the observed period, at nine years and 28 MAF deficit.
- There are deficits of greater severity from the longer paleo record compared to the period from 1906 through 2005. One deficit amounted to 35 MAF through a span of 16 years.
- A summary of the trends from the observed period suggest declining stream flows, increases in variability, and seasonal shifts in streamflow that may be related to shifts in temperature.

Findings concerning the future projected supply include:

- Increased temperatures are projected across the Colorado River Basin with larger changes in the Upper Basin than in the Lower Basin. Annual Colorado River Basin-wide average temperature is projected to increase by 1.3 degrees Celsius over the period through 2040.
- Projected seasonal trends toward drying are significant in certain regions. A general trend towards drying is present in the Colorado River Basin, although increases in precipitation are projected for some higher elevation and hydrologically productive regions. Consistent and expansive drying conditions are projected for the spring and summer months throughout the Colorado River Basin, although some areas in the Lower Basin are projected to experience slight increases in precipitation, which is thought to be attributed to monsoonal influence in the region. Upper Basin precipitation is projected to increase in the fall and winter, and Lower Basin precipitation is projected to decrease.
- Snowpack is projected to decrease due to precipitation falling as rain rather than snow and warmer temperatures melting the snowpack earlier. Areas where precipitation does not change or increase is projected to have decreased snowpack in the fall and early winter. Substantial decreases in spring snowpack are projected to be widespread due to earlier melt or sublimation of snowpack.

- Runoff (both direct and base flow) is spatially diverse, but is generally projected to decrease, except in the northern Rockies. Runoff is projected to increase significantly in the higher elevation Upper Basin during winter but is projected to decrease during spring and summer.

The following future actions must be taken to implement solutions and help resolve the imbalance between water supply and demand in areas that use Colorado River water (U.S. Department of the Interior Bureau of Reclamation, Colorado River Basin Water Supply and Demand Study, December 2012):

- Resolution of significant uncertainties related to water conservation, reuse, water banking, and weather modification concepts.
- Costs, permitting issues, and energy availability issues relating to large-capacity augmentation projects need to be identified and investigated.
- Opportunities to advance and improve the resolution of future climate projections should be pursued.
- Consideration should be given to projects, policies, and programs that provide a wide-range of benefits to water users and healthy rivers for all users.

3.2.2 State Water Project Supplies

The SWP consists of a series of pump stations, reservoirs, aqueducts, tunnels, and power plants operated by DWR and is an integral part of the effort to ensure that business and industry, urban and suburban residents, and farmers throughout much of California have sufficient water. The SWP is the largest state-built, multipurpose, user-financed water project in the United States. Nearly two-thirds of residents in California receive at least part of their water from the SWP with approximately 70 percent of SWP's contracted water supply going to urban users and 30 percent to agricultural users. The primary purpose of the SWP is to divert and store water during wet periods in Northern and Central California and distribute it to areas of need in Northern California, the San Francisco Bay area, the San Joaquin Valley, the Central Coast, and southern California.

The availability of water supplies from the SWP can be highly variable. A wet water year may be followed by a dry or critically dry year and fisheries issues can restrict the operations of the export pumps even when water supplies are available.

The Sacramento-San Joaquin River Delta (Delta) is key to the SWP's ability to deliver water to its agricultural and urban contractors. All but five of the 29 SWP contractors receive water deliveries below the Delta (pumped via the Harvey O. Banks or Barker Slough pumping plants). However, the Delta faces many challenges concerning its long-term sustainability such as climate change posing a threat of increased variability in floods and droughts. Sea level rise complicates efforts in managing salinity levels and preserving water quality in the Delta to ensure a suitable water supply for urban and agricultural use. Furthermore, other challenges include continued subsidence of Delta islands, many of which are below sea level, and the related threat of a catastrophic levee failure as the water pressure increases, or as a result of a major seismic event.

Ongoing regulatory restrictions, such as those imposed by federal biological opinions (Biops) on the effects of SWP and the federal Central Valley Project (CVP) operations on certain marine life, also contributes to the challenge of determining the SWP's water delivery reliability. In dry, below-normal

conditions, Metropolitan has increased the supplies delivered through the California Aqueduct by developing flexible CVP/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 Harvey O. Banks pumping plant capacity to maximize deliveries through the California Aqueduct during dry hydrologic conditions and regulatory restrictions. In addition, the California State Water Resources Control Board (SWRCB) has set water quality objectives that must be met by the SWP including minimum Delta outflows, limits on SWP and CVP Delta exports, and maximum allowable salinity level.

Metropolitan's Board approved a Delta Action Plan in June 2007 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 Delta while a long-term solution is implemented. Currently, Metropolitan is working towards addressing three basin elements: Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development.

"Table A" water is the maximum entitlement of SWP water for each water contracting agency. Currently, the combined maximum Table A amount is 4.17 million acre-feet per year (MAFY). Of this amount, 4.13 MAFY is the maximum Table A water available for delivery from the Delta pumps as stated in the State Water Contract. However, deliveries commonly are less than 50 percent of the Table A.

SWP contractors may receive Article 21 water on a short-term basis in addition to Table A water if requested. Article 21 of SWP contracts allows contractors to receive additional water deliveries only under specific conditions, generally during wet months of the year (December through March). Because an SWP contractor must have an immediate use for Article 21 supply or a place to store it outside of the SWP, there are few contractors like Metropolitan that can access such supplies. .

Carryover water is SWP water allocated to an SWP contractor and approved for delivery to the contractor in a given year but not used by the end of the year. The unused water is stored in the SWP's share of San Luis Reservoir, when space is available, for the contractor to use in the following year.

Turnback pool water is Table A water that has been allocated to SWP contractors that has exceeded their demands. This water can then be purchased by another contractor depending on its availability.

SWP Delta exports are the water supplies that are transferred directly to SWP contractors or to San Luis Reservoir storage south of the Delta via the Harvey O. Banks pumping plant. Estimated average annual Delta exports and SWP Table A water deliveries have generally decreased since 2005, when Delta export regulations affecting SWP pumping operations became more restrictive due to the Biops. A summary SWP water deliveries from the years 2005 and 2013 is summarized in Table 3-1.

Table 3-1: Metropolitan Colorado River Aqueduct Program Capabilities

Year	Average Annual Delta Exports (MAF)	Average Annual Table A Deliveries (MAF)
2005	2.96	2.82
2013	2.61	2.55
Percent Change	-11.7%	-9.4%

The following factors affect the ability to estimate existing and future water delivery reliability:

- Water availability at the source: Availability depends on the amount and timing of rain and snow that fall in any given year. Generally, during a single dry year or two, surface and groundwater storage can supply most water deliveries, but multiple dry years can result in critically low water reserves.
- Water rights with priority over the SWP: Water users with prior water rights are assigned higher priority in DWR’s modeling of the SWP’s water delivery reliability, even ahead of SWP Table A water.
- Climate change: mean temperatures are predicted to vary more significantly than previously expected. This change in climate is anticipated to bring warmer winter storms that result in less snowfall at lower elevations, reducing total snowpack. From historical data, DWR projects that by 2050, the Sierra snowpack will be reduced from its historical average by 25 to 40 percent. Increased precipitation as rain could result in a larger number of “rain-on-snow” events, causing snow to melt earlier in the year and over fewer days than historically, affecting the availability of water for pumping by the SWP during summer.
- Regulatory restrictions on SWP Delta exports due to the Biops to protect special-status species such as delta smelt and spring- and winter-run Chinook salmon. Restrictions on SWP operations imposed by state and federal agencies contribute substantially to the challenge of accurately determining the SWP’s water delivery reliability in any given year.
- Ongoing environmental and policy planning efforts: the California WaterFix involves water delivery improvements that could reduce salinity levels by diverting a greater amount of lower salinity Sacramento water to the South Delta export pumps. The EcoRestore Program aims to restore at least 30,000 acres of Delta habitat, and plans to be well on the way to meeting that goal by the year 2020.
- Delta levee failure: The levees are vulnerable to failure because most original levees were simply built with soils dredged from nearby channels and were not engineered. A breach of one or more levees and island flooding could affect Delta water quality and SWP operations for several months. When islands are flooded, DWR may need to drastically decrease or even cease SWP Delta exports to evaluate damage caused by salinity in the Delta (Department of Water Resources, The State Water Project Final Delivery Capability Report 2015, July 2015).

DWR has altered the SWP operations to accommodate species of fish listed under the Biops, and these changes have adversely impacted SWP deliveries. DWR’s Water Allocation Analysis indicated that export

restrictions are currently reducing deliveries to Metropolitan as much as 150 TAF to 200 TAF under median hydrologic conditions.

Operational constraints likely will continue until a long-term solution to the problems in the Bay-Delta is identified and implemented. New Biops for listed species under the Federal ESA or by the California Department of Fish and Game's issuance of incidental take authorizations under the Federal ESA and California ESA might further adversely affect SWP and CVP operations. Additionally, new litigation, listings of additional species or new regulatory requirements could further adversely affect SWP operations in the future by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations.

3.2.3 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.

Lake Oroville is the SWP's largest storage facility, with a capacity of about 3.5 MAF. The water is released from Oroville Dam into the Feather River as needed, which converges with the Sacramento River while some of the water at Bethany Reservoir is diverted from the California Aqueduct into the South Bay Aqueduct. The primary pumping plant, the Harvey O. Banks pumping plant, pumps Delta water into the California Aqueduct, which is the longest water conveyance system in California.

3.3 Groundwater

3.3.1 Basin Characteristics

The San Juan Basin is located in the San Juan Creek Watershed and is comprised of four principal groundwater sub-basins: 1) Lower Basin, 2) Middle Basin, 3) Upper Basin, and 4) Arroyo Trabuco. A map of the four principal groundwater basins is shown on Figure 3-2. The Middle Basin, Lower Basin, and Lower Trabuco consists of approximately 5.9 square miles of water bearing alluvium. Groundwater occurs in the relatively thin alluvial deposits along the valley floors and within the major stream channels. The younger alluvial deposits within the San Juan Basin consists of a heterogeneous mixture of sand, silts, and gravel.

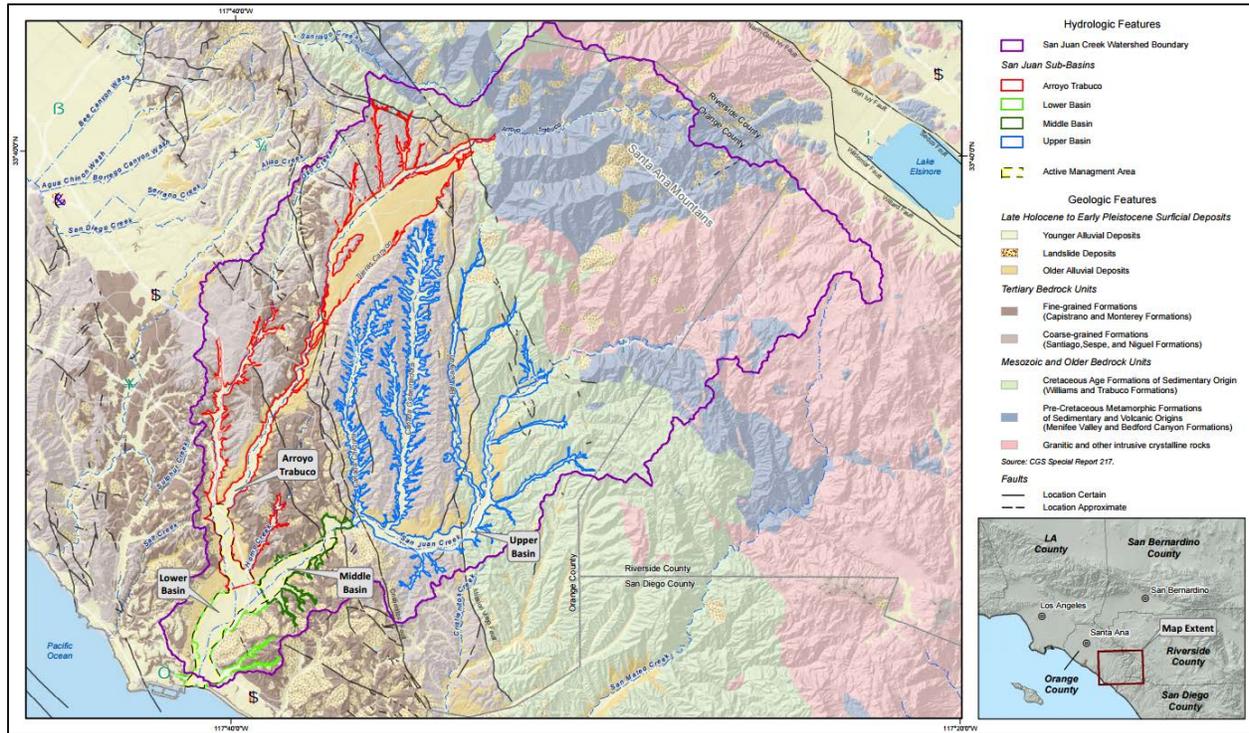


Figure 3-2: Principal Groundwater Basins for the San Juan Groundwater Basin

The physical boundaries of the San Juan Basin include the Santa Ana Mountain to the north, sedimentary rock formations to the sides of the Upper Basin and Arroyo Trabuco, and the Pacific Ocean to the south.

The San Juan Basin is recharged through a variety of sources such as:

- Streambed infiltration in San Juan Creek, Horno Creek, Oso Creek, and Arroyo Trabuco.
- Subsurface inflows along boundaries at the head of the tributaries upstream and other minor subsurface inflows from other boundaries.
- Precipitation and applied water.
- Flow from fractures and springs.

Discharge of groundwater from the San Juan Basin occurs from a variety of sources such as:

- Groundwater production
- Rising groundwater
- ETo
- Outflow to Pacific Ocean

3.3.2 City of San Juan’s Groundwater Recovery Plant

The City completed a 5 MGD GWRP in December 2004 located in the City Hall complex. The capacity of the GWRP was expanded to 6.2 MGD in 2013. The Plant takes groundwater that is high in iron, manganese, and total dissolved solids (TDS) and treats the water using reverse osmosis to make it suitable for potable water uses. The facility produces water from 8 wells that are located along the Lower and Middle San Juan sub basins. The ground water has low levels of MTBE. As part of the treatment for the MTBE granulated activated carbon (GAC) filters were added to the GWRP treatment process in August 2011. The GAC filters remove from the product water any MTBE not removed by the GWRP membranes.

3.3.3 Groundwater Historical Extraction

A summary of the groundwater volume pumped by the City is shown in Table 3-2. The City extracts this groundwater from the San Juan Basin under Permit 21074 and its historic water rights claim. Due to drought conditions and the terms and conditions within Permit 21074, the City has reduced groundwater pumping. Pursuant to the City’s 2002 Implementation Agreement with the SJBA, the City has the right to produce the first 5,800 AFY under Permit 21074.

Table 3-2: Groundwater Volume Pumped (AF)

Retail: Groundwater Volume Pumped						
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	San Juan Groundwater Basin	1,435	3,673	3,607	3,671	2,572
TOTAL		1,435	3,673	3,607	3,671	2,572
NOTES:						

3.4 Summary of Existing and Planned Sources of Water

The actual sources and volume of water for the year 2015 is displayed in Table 3-3. Due to drought conditions and conditions within the permits, the City has reduced groundwater pumping.

Table 3-3: Water Supplies, Actual (AF)

Retail: Water Supplies — Actual			
Water Supply	Additional Detail on Water Supply	2015	
		Actual Volume	Water Quality
Groundwater	San Juan Groundwater Basin	2,572	Drinking Water
Purchased or Imported Water	MWDOC	5,457	Drinking Water
Recycled Water		502	Recycled Water
Total		8,531	
NOTES:			

2015 URBAN WATER MANAGEMENT PLAN

A summary of the current and planned sources of water for the City is shown in Table 3-4.

Table 3-4: Water Supplies, Projected (AF)

Retail: Water Supplies — Projected						
Water Supply	Additional Detail on Water Supply	Projected Water Supply				
		2020	2025	2030	2035	2040
		Reasonably Available Volume				
Groundwater	GWRP	4,800	4,800	4,800	4,800	4,800
Groundwater	Domestic Well	500	500	500	500	500
Purchased or Imported Water	MWDOC	1,918	1,918	1,918	1,918	1,918
Recycled Water	incl. non-domestic	1,400	1,470	1,470	1,470	1,470
Total		8,618	8,688	8,688	8,688	8,688
NOTES: Recycled Water supply includes 350 AF available supply from the City's non-domestic well that is blended with recycled water.						

3.5 Recycled Water

One of the major components of the City's water conservation program is its recycled water program. The City's recycled water is actually a blend of imported recycle water and non-domestic water from low quality wells. More information concerning the City's recycled water usage can be found in Section 6.

3.6 Supply Reliability

3.6.1 Overview

Every urban water supplier is required to assess the reliability of their water service to its customers under normal, dry, and multiple dry water years. The City 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 numerous local 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 2015 UWMP finds that Metropolitan is able to meet, full-service demands of its member agencies starting 2020 through 2040 during normal years, single dry year, and multiple dry years.

Metropolitan's 2015 Integrated Water Resources Plan (IRP) update describes the core water resources that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2020 through 2040. 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.

3.6.2 Factors Impacting Reliability

The following are some of the factors identified by Metropolitan that may have an impact on the reliability of Metropolitan supplies.

3.6.2.1 Environment

Endangered species protection needs in the Delta have resulted in operational constraints to the SWP system, as mentioned previously in the SWP Supplies section.

3.6.2.2 Legal

The addition of more 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.

3.6.2.3 Water Quality

3.6.2.3.1 *Imported Water*

Metropolitan is responsible for providing high quality potable water throughout its service area. Over 300,000 water quality tests are performed per year on Metropolitan's water to test for regulated contaminants and additional contaminants of concern to ensure the safety of its waters. Metropolitan's supplies originate primarily from the CRA and from the 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 water sources face individual water quality issues of concern. The CRA water source contains higher TDS and the SWP contains higher levels of organic matter, lending to the formation of disinfection byproducts. To remediate the CRA's high level of salinity and the SWP's high level of organic matter, Metropolitan blends CRA and SWP supplies and has upgraded all of its treatment facilities to include ozone treatment processes. 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 (PPCP). While unforeseeable water quality issues could alter reliability, Metropolitan's current strategies ensure the deliverability of high quality water.

The presence of Quagga mussels in water sources is a water quality concern. Quagga mussels are an invasive species that was first discovered in 2007 at Lake Mead, on the Colorado River. This species of mussels form massive colonies in short periods of time, disrupting ecosystems and blocking water intakes. They are capable of causing significant disruption and damage to water distribution systems. Controlling the spread and impacts of this invasive species within the CRA requires extensive maintenance and results in reduced operational flexibility. It also resulted in Metropolitan eliminating deliveries of CRA water into Diamond Valley Lake (DVL) to keep the reservoir free from Quagga mussels.

3.6.2.3.2 *Groundwater*

Groundwater quality from the San Juan Basin was determined through the analyses of available data from production and monitoring wells. Constituents of concern within the San Juan Basin include TDS, nitrate, manganese, and iron.

TDS consists of inorganic salts dissolved in water, with the major ions being sodium, potassium, calcium, magnesium, bicarbonates, chlorides, and sulfates under Title 22. The California secondary maximum contaminant level (MCL) for TDS is 500 mg/L. Four wells were tested for TDS and all of the wells exceeded the secondary MCL for TDS. The lower portion of the San Juan Basin exhibits relatively higher TDS levels due to irrigation return flows, fertilizer use, consumptive use, and dissolution of ions from weathered rock surfaces and salts.

Nitrate within groundwater can be both naturally-occurring and can also be associated with agriculture and other synthetic production. The primary MCL for nitrate in drinking water is 10 mg/L. Most groundwater wells monitored for nitrate exhibited levels below MCL except for two wells.

Manganese is a naturally-occurring inorganic constituent dissolved in water. Manganese is an essential micronutrient at low concentrations, but at higher concentrations in drinking water, manganese may lead to objectionable aesthetic qualities such as bitter taste and staining of clothes. The California secondary MCL for manganese is 0.5 mg/L. Most wells monitored for manganese exceeded the secondary MCL for manganese by as much as 40 times with the exception of two wells in the Oso and Lower Trabuco area.

Iron is a naturally-occurring inorganic constituent dissolved in water. Similar to manganese, iron in low concentrations is an essential micronutrient, but iron in higher concentrations in drinking water leads to the same objectionable aesthetic qualities as those of manganese. The California secondary drinking water MCL for iron is 0.3 mg/L. With the exception of one groundwater well in the Oso area, all wells exceeded the secondary MCL for iron by as much as 60 times (San Juan Basin Authority, San Juan Basin Groundwater and Facilities Management Plan, November 2013).

3.6.2.4 Climate Change

Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning more challenging. The areas of concern for California include a reduction in Sierra Nevada Mountain snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of Delta levee failure, seawater intrusion of coastal groundwater basins, and potential cutbacks on the SWP and CVP. The major impact in California is that without additional surface storage, the earlier and heavier runoff (rather than snowpack retaining water in storage in the mountains), will result in more water being lost to the oceans. A heavy emphasis on storage is needed in the State of California.

In addition, the Colorado River Basin supplies have been inconsistent since about the year 2000, resulting in 13 of the last 16 years of the upper basin runoff being below normal. Climate models are predicting a continuation of this pattern whereby hotter and drier weather conditions will result in continuing lower runoff.

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 legal, water quality, and environmental factors. Climatic conditions have been projected based on historical patterns but severe pattern changes are still a possibility in the future.

3.6.3 Normal-Year Reliability Comparison

The water demand forecasting model developed for the OC Reliability Study (described in Section 2.4.1), to project the 25-year demand for Orange County water agencies, also isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The explanatory variables of population, temperature, precipitation, unemployment rate, drought restrictions, and conservation measures were used to create the statistical model. The impacts of hot/dry weather condition are reflected as a percentage increase in water demands from the average condition. The average (normal) demand is represented by the average water demand of 1990 to 2014 (CDM Smith, Final Technical Memorandum #1 of Orange County Reliability Study, April 2016).

The City is 100 percent reliable for normal year demands from 2020 through 2040. The City has entitlements to receive imported water from Metropolitan through MWDOK via connections to

Metropolitan's regional distribution system. Although pipeline and connection 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 are assumed available to the City from existing water transmission facilities. The demand and supplies listed below also include local groundwater supplies that are available to the City through OCWD by a pre-determined pumping percentage.

3.6.4 Single-Dry Year Reliability Comparison

A single-dry year is defined as a single year of no to minimal rainfall within a period that average precipitation is expected to occur. The water demand forecasting model developed for the OC Reliability Study (described in Section 2.4.1) isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The impacts of hot/dry weather condition are reflected as a percentage increase in water demands from the average condition (1990-2014). For a single dry year condition (FY2013-14), the model projects a nine percent increase in demand for the South County area where the City's service area is located (CDM Smith, Final Technical Memorandum #1 of Orange County Reliability Study, April 2016). Detailed information of the model is included in Appendix G.

The City has documented that it is 100 percent reliable for single dry year demands from 2020 through 2040 with a demand increase of nine percent from normal demand with significant reserves held by Metropolitan, local groundwater supplies, and conservation.

3.6.5 Multiple-Dry Year Period Reliability Comparison

Multiple-dry years are defined as three or more consecutive years with minimal rainfall within a period of average precipitation. The water demand forecasting model developed for the OC Reliability Study (described in Section 2.4.1) isolated the impacts that weather and future climate can have on water demand through the use of a statistical model. The impacts of hot/dry weather condition are reflected as a percentage increase in water demands from the average condition (1990-2014). For a single dry year condition (FY2013-14), the model projects a nine percent increase in demand for the South County area where the City's service area is located (CDM Smith, Final Technical Memorandum #1 of Orange County Reliability Study, April 2016). It is conservatively assumed that a three-year multi dry year scenario is a repeat of the single dry year over three consecutive years (FY 2011-12 through FY 2013-14).

The City is capable of meeting all customers' demands with significant reserves held by Metropolitan, local groundwater supplies, and conservation in multiple dry years from 2020 through 2040 with a demand increase of nine percent from normal demand with significant reserves held by Metropolitan, local groundwater supplies, and conservation. The basis of the water year is displayed in Table 3-5.

Table 3-5: Basis of Water Year Data

Retail: Basis of Water Year Data			
Year Type	Base Year	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	1990-2014		100%
Single-Dry Year	2014		109%
Multiple-Dry Years 1st Year	2012		109%
Multiple-Dry Years 2nd Year	2013		109%
Multiple-Dry Years 3rd Year	2014		109%
NOTES:			

3.7 Supply and Demand Assessment

A comparison between the supply and the demand for projected years between 2020 and 2040 is shown in Table 3-6. As stated above, the available supply will meet projected demand due to diversified supply and conservation measures.

Table 3-6: Normal Year Supply and Demand Comparison (AF)

Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040
Supply totals	8,618	8,688	8,688	8,688	8,688
Demand totals	8,618	8,688	8,688	8,688	8,688
Difference	0	0	0	0	0
NOTES:					

A comparison between the supply and the demand in a single dry year is shown in Table 3-7. As stated above, the available supply will meet projected demand due to diversified supply and conservation measures.

Table 3-7: Single Dry Year Supply and Demand Comparison (AF)

Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040
Supply totals	9,394	9,470	9,470	9,470	9,470
Demand totals	9,394	9,470	9,470	9,470	9,470
Difference	0	0	0	0	0

A comparison between the supply and the demand in multiple dry years is shown in Table 3-8.

Table 3-8: Multiple Dry Years Supply and Demand Comparison (AF)

Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040
First year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0
Second year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0
Third year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0
NOTES:						

4 DEMAND MANAGEMENT MEASURES

The goal of the DMM section is to provide a comprehensive description of the water conservation programs that a supplier has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets. The reporting requirements for DMM has been significantly modified and streamlined in 2014 by Assembly Bill 2067. For a retail agency such as the City the requirements changed from having 14 specific measures to six more general requirements plus an “other” category.

4.1 Water Waste Prevention Ordinances

City Council adopted the Urgency Ordinance (Ordinance No. 1024) on June 2, 2015 amending Title 6, Chapter 12 of the City’s Municipal Code and replacing Ordinance No. 941, Ordinance No. 1017, and Ordinance No. 1023. The Urgency Ordinance updated the City’s Water Conservation policy in response to the California Governor’s state of emergency drought declaration and the new SWRCB drought response plan regulations.

The ordinance established a permanent water conservation clause that is effective at all times and is not dependent upon a water shortage for implementation. Prohibition against waste has been established for the following activities/water using features:

- Repair of Plumbing, Sprinkler and Irrigation System
- Watering/Irrigation
- Washing of vehicles
- Commercial car washes
- Washing of equipment and machinery
- Cleaning of structures
- Cleaning of surfaces
- Swimming pools and spas
- Fountains, decorative basins, ponds, lakes, waterways
- Cooling systems
- Commercial laundry facilities, laundromats, and common area laundry rooms
- Visitor-serving facilities
- Public and quasi-public entities
- Food service facilities
- Construction
- Use of hydrants

- Water spillage and runoff
- Indiscriminate use

In an event of a water supply shortage, the ordinance established provisions for five response stages associated with increasingly restrictive prohibitions from Stage 1 Water Watch to Stage 5 Water Emergency. The provisions and water conservation measures to be implemented in response to each shortage stage are described in Section 5 of the UWMP. The City's water conservation ordinance is included in Appendix D.

The Water Conservation Division conducts water patrols throughout the community and issues door hangers indicating runoff, irrigation leaks, and ordinance violations. The City has trained staff to identify customer non-compliance with the City's water conservation ordinance. Door hangers also provide Water Conservation staff contacts for scheduling appointments for individual home and landscape surveys. Habitual violators are referred to code enforcement for citation and administrative hearing procedures. During 2015-2016, the City has issued a total of 537 door hangers.

Excess water use penalties are implemented during Stage 2 through Stage 5 water shortage contingency measures. Customers are alerted to their water use limitations on their water bills and are able to track and manage use during the designated three-month penalty period. Customers are assessed penalties on their water bills if they exceed the designated three-month cumulative water use limit. The cost of the penalty escalates with each water shortage contingency stage. Customers are also mailed water tracking cards for the year to stay informed and manage their water consumption. Regular water bill inserts are included in each monthly billing cycle. Notification of ordinance restrictions are also communicated through the City's webpage, email notices, newspaper advertisements, and bulk mailings.

4.2 Metering

All of the City's existing connections are metered. The City requires individual metering for all new connections and bills monthly by volume of use. New commercial accounts are required to have dedicated irrigation meters.

Water meters are replaced as needed. The Utilities Department has replaced 400-500 small meters annually. During 2014- 2015, all the City's large meters (3-8 inches) were tested, 99.9 percent of all the meters tested passed. The City is seeking funds to replace and upgrade all water meters over the next three years to Advanced Metering Infrastructure (AMI) and/or combination with Automatic Meter Reading (AMR) products. This would also involve an upgraded billing management system and enhanced leak detection component.

The City is in the process of submitting a Request for Proposal (RFP) for a turn-key Advanced Metering Infrastructure (AMI) project. Federal grant funding for the project has been submitted to the U.S. Department of the Interior, Bureau of Reclamation under their 2016 WaterSMART: Water and Energy Efficiency Grants. Additional grant funding is also being pursued.

4.3 Conservation Pricing

The City has had a water-budget-based rate structure since 1991. Revised as of July 1, 2014, the rate structure continues to be four tiers for billing purposes, and 11 different customer types. Rates and

budgets are tailored for each classification, based on cost of service and individualized water budget allocations for each account. The factors which are included to calculate the monthly allocations are: lot size, house size (if residential; also indoor allocations), real-time weather (ETo), monthly crop coefficient (Kc) of cool season turf grass, and number of days in the billing period. Current water rates per hundred cubic feet (ccf) are shown in Table 4-1.

Table 4-1: San Juan Capistrano Water Usage Rates

Customer Type	Water Rate (\$/ccf) per Tier				Allocation Type (in ccf)
	Essential*	Efficient	Inefficient	Excessive	
Regular Lot	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + Standard Outdoor (2,700 Sq Ft)
Large Lot	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] (x # Units) + Outdoor by Sq Ft (concentric)
Master-metered Residential	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] (x # Units) + Outdoor by Sq Ft
Multi with Own Irrigation	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + 500 Sq Ft Outdoor (1 ccf+)(x # Units)
Multi Without Irrigation	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + 100 Sq Ft Outdoor (1 ccf) (x # Units)
Landscape	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + Outdoor by Sq Ft
Agriculture	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + Outdoor by Sq Ft
Commercial	\$3.77	\$5.24	\$5.69	\$5.69	Essential [9] + Efficient = winter average use (Jan, Feb, Mar)
Construction	N/A	N/A	\$5.69	N/A	No allocations, all use at Tier 3
Non-potable (& Recycled)	\$3.53	\$3.53	\$4.20	\$4.20	Essential [9] + Outdoor by Sq Ft
Firelines	N/A	N/A	\$5.69	N/A	No allocations, all use at Tier 3

4.4 Public Education and Outreach

The City has an energetic public information program, including the H2O for HOAs water forum for homeowner associations, along with public information meetings held at City Hall on various topics, and staff engagements speaking to groups and clubs. Written information provided to the public includes brochures available at public counters, bill inserts, newspaper articles, and electronic eNews releases. The conservation program has purchased monthly advertising space in a local paper, to keep the public informed of drought-related efforts and current events. Other opportunities to engage the public include staffing a booth at Earth Day events, and booths at Summer Nites concerts and other City events. A banner is hung above the City’s main street intersection alerting residents to drought conditions and water

conservation awareness. Public Information programs have long been a staple of basic customer service outreach.

Demonstration Gardens

During the past years, the City has installed California Friendly landscapes at four public venues throughout the City, including the landscape around City Hall, and a new 5-acre all-native park in the Historic District. These parks and gardens act as examples for residents, homeowner associations and landscape architects to emulate. The City converted all City Halls' landscape to a Demonstration garden featuring water use efficiency and BMPs practices. The Garden has a dry river rock bio swell design to retain rain water, advanced irrigation system, and examples of a California Friendly plant pallet in a variety of colors and textures that attracts wildlife. The Garden is open for the public visits during office's business hours.

On July 15, 2015, DWR updated Model Water Efficient Landscape Ordinance (MWELo) was approved and filed with the Administrative Law office. The update includes new development projects that have landscape areas of 500 sq. ft. or more are subject to the Ordinance. This applies to residential, commercial, industrial and institutional projects that require a permit, plan check or design review. The previous landscape size threshold for new development projects ranged from 2500 sq. ft. to 5000 sq. ft. All new and retrofitted landscapes are to subject to the ordinance, which limits the amount of turf and requires weather based irrigation controllers and low-volume emitters, among many other stringent guidelines. The demonstration gardens and development requirements strongly reinforce the linkage between efficient irrigation and reduction in urban runoff.

Coordination with Other Government Agencies

The City participates in MWDOC's regional Water Use Efficiency and Public Affairs Workgroups, along with the Metropolitan Conservation Coordinators' meeting. These meetings facilitate increased communication and shared resources with other Orange County and southern California water agencies. The Tri-Cities group collaborates on many public outreach and education projects which target select groups. For example, the H2O for HOAs Water Forum targets HOA board members, property managers, and local landscape contractors while the H2O for Hospitality Water Forum targets owners and managers of hotels and restaurants to go over conservation-related Best Management Practices (BMP) for their related industry, trade, or responsibility.

MWDOC has established an extensive public education and outreach program to assist retail agencies in Orange County to promote water use efficiency awareness within their service areas. MWDOC's public education and outreach programs consist of five primary activities as described below.

In addition to the primary programs it administers, MWDOC also maintains a vibrant public website (www.mwdoc.com) as well as a social media presence on Facebook, Twitter and Instagram. MWDOC's Facebook page has more than 1,200 followers. The social media channels are used to educate the public about water-efficiency, rates and other water-related issues.

MWDOC's public education and outreach programs are described below:

School Education Programs

MWDOC school education programs reach more than 100,000 students per year. The program is broken into elementary and high school components.

- *Elementary School Program* reaches 60,000 students throughout Orange County through assemblies hosted by the Discovery Science Center. MWDOC holds a \$220,000 contract with the Discovery Science Center, funded proportionally by the participating MWDOC retail agencies. During 2010-2015 over 9,666 students from schools within the City's service area participated in the school assemblies hosted by the Discovery Science Center.
- *High School Program* is new in 2015-16 and will reach students in 20 high schools in Orange County. The program is administered by MWDOC and operated by two contractors, the OC Department of Education and the Ecology Center. Through the three-year contract, those agencies will train more than 100 county teachers on water education on topics such as, water sources, water conservation, water recycling, watersheds, and ecological solutions for the benefit of their current and future students. Teachers will learn a variety of water conservation methods, such as irrigation technology, rainwater harvesting, water recycling, and water footprinting through a tour at the Ecology Center facility. These trainings allow teachers to support student-led conservation efforts. The program will reach a minimum of 25,000 students by providing in-classroom water education and helping students plan and implement campus wide "Water Expos" that will allow peer-to-peer instruction on water issues. The \$80,000 program is funded by participating agencies.

Value of Water Communication Program

MWDOC administers this program on behalf of 14 agencies. The \$190,000 program involves the water agencies developing 30 full news pages that will appear weekly in the Orange County Register, the largest newspaper in the county, with a Sunday readership of 798,000. The campaign will educate OC residents and business leaders on water infrastructure issues and water efficiency measures, as well as advertise water related events and other pertinent information.

Quarterly Water Policy Dinners

The Water Policy Dinner events attract 225 to 300 water and civic leaders every quarter. The programs host speakers topical to the OC water industry, with recent addresses from Felicia Marcus of the state water board and Dr. Lucy Jones, a noted expert on earthquakes and their potential impact on infrastructure.

Annual Water Summit

The annual Water Summit brings together 300 Orange County water and civic leaders with state and national experts on water infrastructure and governance issues. The half-day event has a budget of \$80,000 per year. Portions of the cost are covered by attendance and sponsorships, while MWDOC splits a portion with its event partner, the OCWD.

Water Inspection Trips

Water Inspection trips take stakeholders on tours of the CRA, California Delta and other key water infrastructure sites. The public trips are required under Metropolitan's regulations. While Metropolitan covers the cost of the trips, MWDOC has two members of the public affairs staff that work diligently on identifying OC residents and leaders to attend. MWDOC staff also attends each trip. In the past year, MWDOC participated in a dozen trips, each taking an average of 30 residents. MWDOC also works with Metropolitan on special trips to educate County Grand Jurors the key water infrastructure.

4.5 Programs to Assess and Manage Distribution System Real Loss

Senate Bill 1420 signed into law in September 2014 requires urban water suppliers that submit UWMPs to calculate annual system water losses using the water audit methodology developed by the AWWA. AB 1420 requires the water loss audit be submitted to DWR every five years as part of the urban water supplier's UWMP. Water auditing is the basis for effective water loss control. DWR's UWMP Guidebook include a water audit manual intended to help water utilities complete the AWWA Water Audit on an annual basis. A Water Loss Audit was completed for the City which identified areas for improvement and quantified total loss. Based on the data presented, the three priority areas identified were water imported, customer metering inaccuracies, and volume from own sources. Multiple criteria are a part of each validity score and a system wide approach will need to be implemented for the City's improvement. Quantified water loss for the FY 2014-15 was 881.47 AF which is a significant volume and presents opportunities for improvement. Non-revenue water represents 11.9 percent of the volume of water supplied with approximately 6 percent due to meter inaccuracy.

The City maintains an emergency response capability 24 hours a day, and can quickly deploy staff to isolate and repair leaks as soon as they are identified. The City also employs a contractor to check and repair trouble spots in mainlines and service lines. In 2008, the City purchased and began to employ a leak correlator, a leak detection device which is deployed throughout the distribution system as needed to proactively assess leak potential as part of the leak detection process. Water loss has historically fluctuated between 2 percent and 5 percent annually for the past 25 years, so a full scale audit has not been required. Water loss via leaks amounts to 0.5 percent and the amount lost via meter inaccuracies amounts to 5 percent or more of the total water supplied by the City. All leaks are mapped with the City's GIS system, which helps identify areas for more frequent proactive surveys in the future.

4.6 Water Conservation Program Coordination and Staffing Support

The City has employed a full-time water conservation coordinator since 1992. The City's water conservation coordinator is responsible for enhanced customer service response, designing and implementing all conservation programs, including baseline water use efficiency and drought management, communicating and promoting water conservation issues to the City's management and the public, cooperating with MWDOC and Metropolitan on regional conservation programs, coordinating with City staff on local conservation programs, coordinating with California Urban Water Conservation Council (CUWCC) staff, and preparing CUWCC BMP Reports.

During drought conditions and in conjunction with State emergency regulations, the City employs additional temporary water conservation staff to assist with outreach and public education as well as regulatory enforcement policies.

Water rates fund the Water Conservation program. Penalty fees assessed for excess water use also help to fund additional temporary staff and programs for an enhanced outreach and drought management program.

4.7 Other Demand Management Measures

During the past five years, FY 2010-11 to 2014-15, the City, with the assistance of MWDOC, has implemented many water use efficiency programs for its residential, CII, and landscape customers as described below. Appendix I provides quantities of rebates and installations achieved under each program since program inception. The City will continue to implement all applicable programs in the next five years.

4.7.1 Residential Programs

Local Residential Program

The City's budget-based rate structure acts as an efficient notification to residents that water use has risen above a prudent level; when usage on an account increases above the monthly budget, the price per unit of water increase. This can be the signal a customer needs to identify a leak or malfunction they were otherwise unaware of. Leaks such as slab leaks can have severe or even catastrophic consequences, so there are multiple benefits to this pricing signal. Rates are described in greater detail in Section 4.3.

As part of the monthly meter reading process, rereads are proactively undertaken when water use exceeds a threshold percentage of increase, set seasonally by the customer service department. If field staff subsequently determines that a high read is correct, they also check the meter for movement and leave a tag on the door indicating that the customer's use is unusually high, and suggesting they check for leaks. Often, dye tablets are distributed at this time, as toilet leaks are the most common cause of high use. Door tags are also provided to all water field staff, for use year-round to notify customers about runoff, broken sprinklers, and leaks observed.

The City actively engages in residential site visits, including complete indoor and outdoor water use surveys for single family and multi-family customers. These surveys are offered proactively to customers with water consumption in the higher tiers of usage, as defined by the budget-based rate structure. Surveys also take place at the request of the customer, in conjunction with a high use investigation following a high water bill. In the process of assessing flow rates of all fixtures, other water uses at the home, and the condition of any irrigation system on site, the City makes recommendations and identifies appropriate retrofits and rebates that are available. The City also provides free aerators, showerheads, toilet flappers, and hose nozzles to customers, along with relevant brochures and information on California Friendly landscape and irrigation practices.

Water savings attributed to residential surveys have not been quantified. Each site has varying conditions. This activity is seen as an essential customer service, and does result in water use reductions with plumbing retrofits, adjustments to irrigation schedules, and leak repair.

Regional Programs

The City participates in regional landscape programs through MWDOC, aimed at helping residential and small commercial customers to be more water efficient. Programs include Water Smart Home Survey Program, High Efficiency Toilet & Clothes Washer Program, Smart-Timer Rebate Program, Rotating Nozzle Rebate Program, Turf Removal Program, Rain Barrels, Spray to Drip Program, and the California Friendly Landscape Program as described below.

Water Smart Home Survey Program

The Water Smart Home Survey Program provides free home water surveys (indoor and outdoor). The Water Smart Home Survey Program uses a Site Water Use Audit program format to perform comprehensive, single-family home audits. Residents choose to have outdoor (and indoor, if desired) audits to identify opportunities for water savings throughout their properties. A customized home water audit report is provided after each site audit is completed and provides the resident with their survey results, rebate information, and an overall water score. The program was administrated during 2013-2015, the City had 19 sited participated in the Home Water Survey.

High Efficiency Clothes Washer Rebate Program

The High Efficiency Clothes Washer (HECW) Rebate Program provides residential customers with rebates for purchasing and installing WaterSense labeled HECWs. HECWs use 35-50 percent less water than standard washer models, with savings of approximately 9,000 gallons per year, per device. Devices must have a water factor of 4.0 or less, and a listing of qualified products can be found at ocwatersmart.com. There is a maximum of one rebate per home. As of April 2016, 1414 HECWs have been installed in single and multi-family homes within the City's service area through this program. These retrofits have saved over 272 acre feet of potable water over the program's lifetime to date.

High Efficiency Toilet Rebate Program

The largest amount of water used inside a home, 30 percent, goes toward flushing the toilet. The High Efficiency Toilet (HET) Rebate Program offers incentives to residential customers for replacing their standard, water-guzzling toilets with HETs. HETs use just 1.28 gallons of water or less per flush, which is 20 percent less water than standard toilets. In addition, HETS save an average of 38 gallons of water per day while maintaining high performance standards.

Over the past 19 years, MWDOC has continuously implemented regional ULFT rebate and distribution programs targeting single- and multi-family homes in Orange County. Since the end of the direct distribution program in 2004, MWDOC's program has focused solely on providing rebate incentives for retrofitting non-efficient devices with either ULFTs or High Efficiency Toilets (HETs) – toilets using 1.28 gallons per flush or less. The regional ULFT portion of this program concluded in June 2009. In 2015, MWDOC changed the HET regional requirements for a \$40 rebate to HETs that have a 1.06 gallons or less per flush. The City has participated in this regional program from the beginning. When the regional

Ultra Low Flush program ended in 2009, the City determined that over 4,000 pre-1993 toilets still remained in the City's service area, and the City adopted a local incentive program targeting those old fixtures. The program requires City staff to inspect the old toilet to verify its age before replacement, and the incentive is \$200 per toilet, up to two per home. To date 4,663 ULFTs and 516 HETs have been installed via the regional program, with an additional 443 placed to date via the City's incentive program.

4.7.2 CII Programs

Water Smart Hotel Program

Water used in hotels and other lodging businesses accounts for approximately 15 percent of the total water use in commercial and institutional facilities in the United States. The Water Smart Hotel Program provides water use surveys, customized facility reports, technical assistance, and enhanced incentives to hotels that invest in water use efficiency improvements. Rebates available include HETs, ultralow volume urinals, air-cooled ice machines, weather-based irrigation controllers (WBIC), and rotating nozzles.

Socal WaterSmart Rebate Program for CII

The City through MWDOC offers financial incentives under the Socal WaterSmart Rebate Program which offers rebates for various water efficient devices to CII customers, such as HETs, ultralow volume urinals, connectionless food steamers, air-cooled ice machines, pH-cooling towers controller, and dry vacuum pumps.

4.7.3 Landscape Programs

Turf Removal Program

The Orange County Turf Removal Program offers incentives to remove non-recreational turf grass from commercial properties throughout the County. This program is a partnership between MWDOC, Metropolitan, and local retail water agency. The goals of this program are to increase water use efficiency within Orange County, reduce runoff leaving the properties, and evaluate the effectiveness of turf removal as a water-saving practice. Participants are encouraged to replace their turf grass with drought-tolerant landscaping, diverse plant palettes, and artificial turf, and they are encouraged to retrofit their irrigation systems with Smart Timers and drip irrigation (or to remove it entirely).

About 50 percent or more of residential household water demand is used for outside irrigation where opportunities to conserve water are substantial. Since the program began in 2010, MWD has increased incentive rate up to \$2 per square foot of turf removed during the 2014-2015 drought, the program has become extremely popular during the drought conditions. The program applications exceed funding availability annually. The program rebate levels and eligible area size have changed since inception. Pre-inspection and post-inspections continue to be a requirement. Through this program, 315,326 sq. ft. of grass has been removed from residential properties and another 254,284 sq. ft. at commercial properties. This translates to a cumulative water savings to date of 196.40 acre-feet for the City's service area.

Rain Barrel Rebate Program

Rainwater is an alternate water supply reduces potable water demand while reducing the amount of polluted storm water runoff from entering the ocean. Rainwater Harvesting also raises awareness of water supplies and landscape consumption, often resulting in replacement of plant materials with more

low water using materials. The City actively promotes the use of rainwater for landscape irrigation through free workshops for homeowners. The incentive level for rain barrels are \$75 each, up to four per household.

Water Smart Landscape Program

MWDOC's Water Smart Landscape Program is a free water management tool for homeowner associations, landscapers, and property managers. Participants in the program use the Internet to track their irrigation meter's monthly water use and compare it to a custom water budget established by the program. This enables property managers and landscapers to easily identify areas that are over/under watered and enhances their accountability to homeowner association boards.

Smart Timer Rebate Program

Smart Timers are irrigation clocks that are either WBICs or soil moisture sensor systems. WBICs adjust automatically to reflect changes in local weather and site-specific landscape needs, such as soil type, slopes, and plant material. When WBICs are programmed properly, turf and plants receive the proper amount of water throughout the year. During the fall months, when property owners and landscape professionals often overwater, Smart Timers can save significant amounts of water.

Rotating Nozzles Rebate Program

The Rotating Nozzle Rebate Program provides incentives to residential and commercial properties for the replacement of high-precipitation rate spray nozzles with low-precipitation rate multi-stream, multi-trajectory rotating nozzles. The rebate offered through this Program aims to offset the cost of the device and installation.

Spray to Drip Rebate Program

The Spray to Drip Pilot Rebate Program offers residential and commercial customers rebates for converting planting areas irrigated by spray heads to drip irrigation. Drip irrigation systems are very water-efficient. Rather than spraying wide areas, drip systems use point emitters to deliver water to specific locations at or near plant root zones. Water drips slowly from the emitters either onto the soil surface or below ground. As a result, less water is lost to wind and evaporation.

SoCal WaterSmart Rebate Program for Landscape

The City/District through MWDOC also offers financial incentives under the SoCal WaterSmart Rebate Program for a variety of water efficient landscape devices, such as Central Computer Irrigation Controllers, large rotary nozzles, and in-stem flow regulators.

California Friendly Landscape Training (Residential)

The City host an annual California Friendly Landscape Training Program provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are funded by Metropolitan and promoted by MWDOC and hosted by the City. The residential training program consists of either a half-day Mini Class or individual, topic-specific, four-hour classes. The City typically hosts one class or series each year, in addition to in-depth landscape design seminars taught periodically by City staff. The four topics presented include: 1) Basic Landscape Design, 2) California Friendly Plants, 3) Efficiency Irrigation Systems, and 4) Soils, Watering, Fertilizing.

California Friendly Landscape Training (Professional)

The City host an annual California Friendly Landscape Training provides education to professional landscape contractors on a variety of landscape water efficiency practices they can employ. The Professional Training Program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class, including hardware, controller programming, water budgeting, and plant identification. Each participant receives a bound handbook containing educational materials for each class. These classes are taught in both English and Spanish languages, and the City typically hosts one series each year.

Tri-Cities H2O for HOAs Water Forum

This innovative program is a collaborative effort between the Cities of San Clemente, San Juan Capistrano, and Dana Point in addition to the South Coast Water District to educate homeowners association (HOA) board members, property managers, and landscape contractors about proper irrigation and landscape management. This is an annual event that began in 2007 and attracts over 100 participants who directly manage the large landscapes in our communities. Participants receive the latest information on water efficient technologies and rebates, local water conservation and storm water prevention ordinances, and efficient landscape and irrigation design. Surveys indicate that the participants, specifically the HOA board members, come away from this event more educated about how to sustainably manage their landscapes and empowered to invest more resources, such as installing weather-based irrigation controllers, into conserving water.

5 WATER SHORTAGE CONTINGENCY PLAN

5.1 Overview

In connection with recent water supply challenges, the SWRCB found that California has been subject to multi-year droughts in the past, and the Southwest is becoming drier, increasing the probability of prolonged droughts in the future. Due to current and potential future water supply shortages, Governor Brown issued a drought emergency proclamation on January 2014 and signed the 2014 Executive Order that directs urban water suppliers to implement drought response plans to limit outdoor irrigation and wasteful water practices if they are not already in place. Pursuant to California Water Code Section 106, it is the declared policy of the state that domestic water use is the highest use of water and the next highest use is irrigation. This section describes the water supply shortage policies Metropolitan and the City have in place to respond to events including catastrophic interruption and reduction in water supply.

5.2 Shortage Actions

5.2.1 Metropolitan Water Surplus and Drought Management Plan

Metropolitan evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage annually. Each stage is associated with specific resource management actions to avoid extreme shortages to the extent possible and minimize adverse impacts to retail customers should an extreme shortage occur. The sequencing outlined in the Water Surplus and Drought Management (WSDM) Plan reflects anticipated responses towards Metropolitan's existing and expected resource mix.

Surplus stages occur when net annual deliveries can be made to water storage programs. Under the WSDM Plan, there are four surplus management stages that provides a framework for actions to take for surplus supplies. Deliveries in DVL and in SWP terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from DVL for regulatory purposes or to meet seasonal demands may occur in any stage.

The WSDM Plan distinguishes between shortages, severe shortages, and extreme shortages. The differences between each term is listed below.

- Shortage: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands using stored water or water transfers as necessary.
- Severe Shortage: Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation.
- Extreme Shortage: Metropolitan must allocate available supply to full-service customers.

There are six shortage management stages to guide resource management activities. These stages are defined by shortfalls in imported supply and water balances in Metropolitan's storage programs. When Metropolitan must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition. Figure 5-1 gives a summary of actions under each surplus and shortage stages when

an allocation plan is necessary to enforce mandatory cutbacks. The goal of the WSDM Plan is to avoid Stage 6, an extreme shortage.

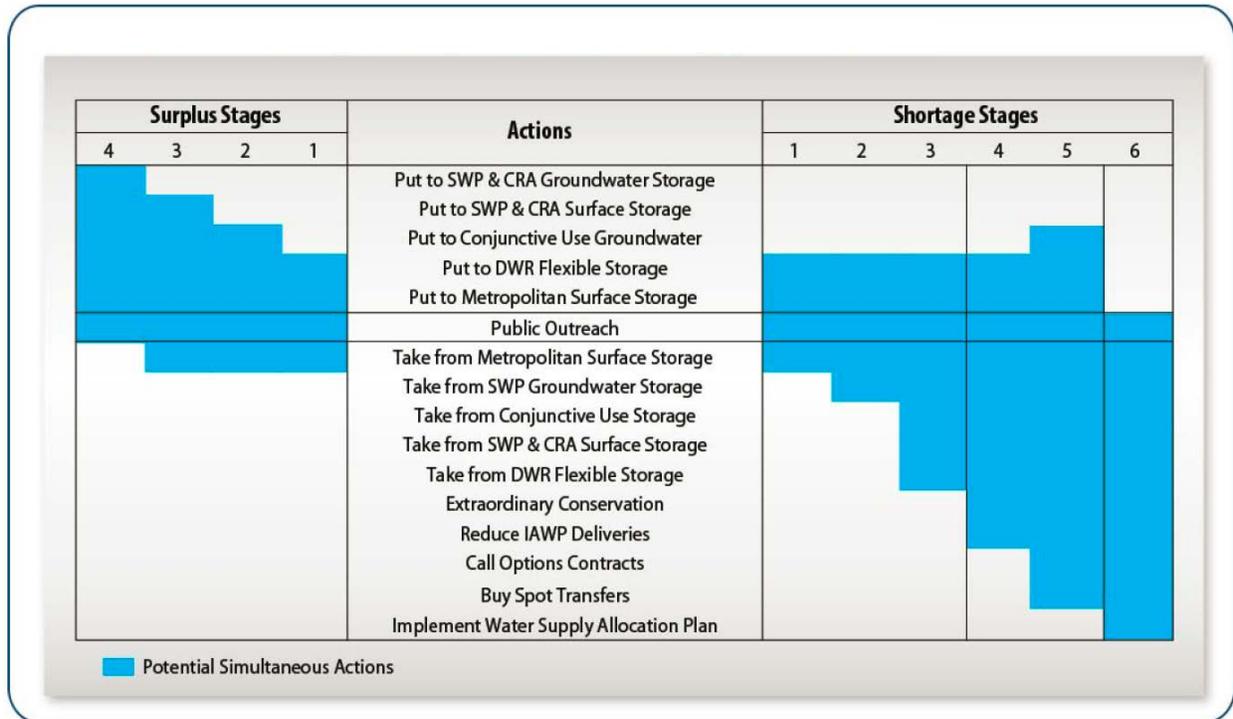


Figure 5-1: Resource Stages, Anticipated Actions, and Supply Declarations

Metropolitan’s Board of Directors adopted a Water Supply Condition Framework in June 2008 in order to communicate the urgency of the region’s water supply situation and the need for further water conservation practices. The framework has four conditions, each calling increasing levels of conservation. Descriptions for each of the four conditions are listed below:

- Baseline Water Use Efficiency: Ongoing conservation, outreach, and recycling programs to achieve permanent reductions in water use and build storage reserves.
- Condition 1 Water Supply Watch: Local agency voluntary dry-year conservation measures and use of regional storage reserves.
- Condition 2 Water Supply Alert: Regional call for cities, counties, member agencies, and retail water agencies to implement extraordinary conservation through drought ordinances and other measures to mitigate use of storage reserves.
- Condition 3 Water Supply Allocation: Implement Metropolitan’s WSAP

As noted in Condition 3, should supplies become limited to the point where imported water demands cannot be met, Metropolitan will allocate water through the WSAP (Metropolitan, 2015 UWMP, June 2016).

5.2.2 Metropolitan Water Supply Allocation Plan

Metropolitan's imported supplies have been impacted by a number of water supply challenges as noted earlier. In case of extreme water shortage within the Metropolitan service area the response is the implementation of its WSAP.

Metropolitan's Board of Directors adopted the WSAP in February 2008 to fairly distribute a limited amount of water supply and to apply it through a detailed methodology to reflect a range of local conditions and needs of the region's retail water consumers.

The WSAP 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 2015 UWMP.

Metropolitan's WSAP was developed in consideration of the principles and guidelines in Metropolitan's 1999 WSDM Plan with the core objective of creating an equitable "needs-based allocation". The WSAP'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 a number of factors, such as the impact on retail customers, growth in population, changes in supply conditions, investments in local resources, demand hardening aspects of water conservation savings, recycled water, extraordinary storage and transfer actions, and groundwater and imported water needs.

The formula is calculated in three steps: 1) based period calculations, 2) allocation year calculations, and 3) supply allocation calculations. The first two steps involve standard computations, while the third step contains specific methodology developed for the WSAP.

Step 1: Base Period Calculations – The first step in calculating a member agency's water supply allocation is to estimate their 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 supply and demand is calculated using data from the two most recent non-shortage fiscal years ending 2013 and 2014.

Step 2: Allocation Year Calculations – The next step in calculating the member agency's 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 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.

In order to implement the WSAP, Metropolitan's Board of Directors makes a determination on the level of the regional shortage, based on specific criteria, typically in April. The criteria used by Metropolitan includes, current levels of storage, estimated water supplies conditions, and projected imported water demands. The allocations, if deemed necessary, go into effect in July of the same year and remain in effect for a 12-month period. The schedule is made at the discretion of the Board of Directors.

Although Metropolitan's 2015 UWMP forecasts that Metropolitan will be able to meet projected imported demands throughout the projected period from 2020 to 2040, uncertainty in supply conditions can result

in Metropolitan needing to implement its WSAP to preserve dry-year storage and curtail demands (Metropolitan, 2015 UWMP, June 2016).

5.2.3 MWDOC Water Supply Allocation Plan

To prepare for the potential allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 retail agencies to develop its own WSAP that was adopted in January 2009 and amended in 2015. The MWDOC WSAP outlines how MWDOC will determine and implement each of its retail 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 member agencies. The MWDOC WSAP model follows five 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 two non-shortage fiscal years ending 2013 and 2014.

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

Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts and Conservation– 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 retail agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a retail agency's appeal will be the basis for an appeal to Metropolitan by MWDOC.
- Melded Allocation Surcharge Structure – At the end of the allocation year, MWDOC would only charge an allocation surcharge to each retail agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a surcharge to Metropolitan. Metropolitan enforces

allocations to retail agencies through an allocation surcharge to a retail agency that exceeds its total annual allocation at the end of the 12-month allocation period. MWDOC's surcharge would be assessed according to the retail agency's prorated share (acre-feet over usage) of MWDOC amount with Metropolitan. Surcharge funds collected by Metropolitan will be invested in its Water Management Fund, which is used to in part to fund expenditures in dry-year conservation and local resource development.

- Tracking and Reporting Water Usage – MWDOC will provide each retail agency with water use monthly reports that will compare each retail 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.
- 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 retail agencies.

5.2.4 City of San Juan Capistrano

The City Council adopted Urgency Ordinance No. 1024, amending Title 6, Chapter 12 of the City's Municipal Code pertaining to water conservation, which established a staged water conservation program that will encourage reduced water consumption within the City 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 the City. Along with permanent water conservation requirements, the City's Water Conservation Program consists of the following five stages found in Table 5-1 to respond to a reduction in potable water available to the City for distribution to its customers in addition to the year round restrictions in effect at all times (San Juan Capistrano, Urgency Ordinance No. 1024, June 2015).

Table 5-1: Stages of Water Shortage Contingency Plan

Retail Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction	Water Supply Condition
1	-	A Stage 1 Water Watch exists when the City determines a water supply shortage exists and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions
2	-	A Stage 2 Water Alert exists when the City determines a water supply shortage and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
3	-	A Stage 3 Water Warning when the City determines a water supply shortage and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
4	-	A Stage 4 Water Crisis applies when the City determines, a water supply shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
5	-	A Stage 5 Water Emergency applies when the City determines a water supply shortage or threatened shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
NOTES: The City does not have percent supply reduction per each stage of its Water Shortage Contingency Plan		

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 invoking preferential rights, Metropolitan and its member agencies accepted the terms and conditions of Metropolitan’s shortage allocation plan, which allocated imported water under limited supply conditions. In fact, in FY 2015-2016, Metropolitan implemented its WSAP at a stage level 3 (seeking no greater than a 22.5 percent regional reduction of water use), which is the largest reduction Metropolitan has ever imposed on its member agencies. This WSAP level 3 reduction was determined

when Metropolitan water supplies from the SWP was at its lowest levels ever delivered and water storage declined greater than 1 MAF in one year.

MWDOC has 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 firm demands in MWDOC’s latest allocation model has been used to estimate the minimum imported supplies available to each of MWDOC’s retail agencies for 2015-2018. Thus, the estimate of the minimum imported supplies available to the City is 8,734 AF as shown in Table 5-2 (MWDOC, Water Shortage Allocation Model, November 2015).

Table 5-2: Minimum Supply Next Three Years (AF)

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	8,734	8,734	8,734
NOTES:			

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 of aqueducts, pipelines and other facilities associated with delivering the supplies to the region. Additionally, the infrastructure in place to deliver supplies are susceptible to damage from earthquakes and other disasters.

5.4.1 Metropolitan

Metropolitan has comprehensive plans for stages of actions it would undertake to address a catastrophic interruption in water supplies through its WSDM Plan and WSAP. 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 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 2015 UWMP.

5.4.2 Water Emergency Response 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, including the City.

5.4.3 City of San Juan Capistrano

The City's Utilities Department staff meets monthly to reinforce its emergency plan procedures in the event of a catastrophic event. The City's water system is very diverse, with ten reservoirs, eight active pump stations, three imported water connections, five emergency interconnections, one GWRP, and one domestic well. The City distribution system also has three portable emergency generators to run wells and pump stations in the event of a power outage. The City's GWRP has three portable 100 kW and 2 fixed 600 kW generators to keep the GWRP running in the event of a power outage.

Preparation actions for possible catastrophes, including earthquakes, terrorist acts which interrupts services, and pipeline breaks, include:

- Participation in WEROC.
- Participation in South Orange County Water Reliability Study.
- Preparation of redundant sources of water supply.
- Preparation of emergency pump station failure procedures manual.
- Participation in vulnerability assessment of water facilities.
- Participation in Emergency Response Plan as required by the Public Health, Security, and Bioterrorism Preparedness Act.

5.5 Prohibitions, Penalties and Consumption Reduction Methods

5.5.1 Prohibitions

The City's Urgency Ordinance lists water conservation requirements which shall take effect upon implementation by the City Council. These prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement the City's water quality regulations, and enable implementation of the City's Water Shortage Contingency measures.

Water conservation measures become more restrictive per each progressive stage in order to address the increasing differential between the water supply and demand.

A list of restrictions and prohibitions that are applicable to each stage is displayed in Table 5-3 (San Juan Capistrano, Urgency Ordinance No. 1024, June 2015).

Table 5-3: Restrictions and Prohibitions on End Uses

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
Permanent Year-Round	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Malfunctions in user’s plumbing, distribution, or irrigation system must be corrected in no more than 24 hours of City notification.	No
Permanent Year-Round	Landscape - Limit landscape irrigation to specific times	Irrigating vegetated area is prohibited any day of the week between 9:00 am and 6:00 pm except by hand watering with an automatic shutoff nozzle or repairing an irrigation system for very short periods of time.	No
Permanent Year-Round	Landscape - Other landscape restriction or prohibition	Watering of any landscape is prohibited while it is raining or within 48 hours of measurable rainfall of one tenth inch or more.	No
Permanent Year-Round	Landscape - Restrict or prohibit runoff from landscape irrigation	Operation of landscape irrigation systems shall minimize overspray and/or excessive runoff onto impervious surfaces.	No
Permanent Year-Round	Other	Irrigation with potable water of landscapes outside of newly constructed buildings inconsistent with regulations established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited.	No
Permanent Year-Round	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	No
Permanent Year-Round	Other	Commercial car wash facilities must use mechanical automatic car wash facilities with water recycling equipment, hoses with timers, hoses with an automatic shutoff device, and/or use of bucket and hand washing.	No

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
Permanent Year-Round	Other	Washing of equipment or machinery is prohibited unless hose is equipped with an automatic shutoff device. Wash water must be discharged into the sanitary sewer system through an appropriate treatment system.	No
Permanent Year-Round	Other	Cleaning exterior of any structure with water is prohibited unless hose is equipped with an automatic shutoff device. Wash water must be prevented from discharging to the storm water drainage system.	No
Permanent Year-Round	Other - Prohibit use of potable water for washing hard surfaces	-	No
Permanent Year-Round	Other water feature or swimming pool restriction	Emptying and refilling a swimming pool is prohibited except under compliance with public health regulations. Discharge of pool or spa filter backwash water to storm drain is prohibited. All pools and spas shall be equipped with a water recirculation device.	No
Permanent Year-Round	Water Features - Restrict water use for decorative water features, such as fountains	The use of water to operate or maintain levels in decorative fountains, basins, ponds, lakes, and waterways is prohibited unless a recirculation device is in use.	No
Permanent Year-Round	Other	No single pass cooling systems shall be permitted in new connections to the potable water system.	No
Permanent Year-Round	Other	New commercial laundry facilities shall be equipped with a water reclamation system for reuse of rinse water. Laundromats and common area laundry rooms shall install high efficiency clothes washing machines, as older machines are replaced.	No

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
Permanent Year-Round	CII - Lodging establishment must offer opt out of linen service	-	No
Permanent Year-Round	CII - Restaurants may only serve water upon request	-	No
Permanent Year-Round	CII - Commercial kitchens required to use pre-rinse spray valves	-	No
Permanent Year-Round	Other - Prohibit use of potable water for construction and dust control	-	No
Permanent Year-Round	Other	No person may use water from any fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining City permission.	No
Permanent Year-Round	Other	Indiscriminate running of water which is wasteful and without reasonable purpose is prohibited.	No
Permanent Year-Round	Other	Every person shall minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff. Gutter flooding is specifically prohibited.	No
2	Landscape - Limit landscape irrigation to specific days	Outdoor irrigation of ornamental landscapes or turf with potable water will be limited to no more than two (2) days per week on an assigned schedule established by the City.	Yes

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
2	Landscape - Prohibit certain types of landscape irrigation	Irrigation of ornamental turf with potable water on medians is prohibited.	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	-	Yes
2	Other	Cleaning of structures, using water from a hose, shall be prohibited.	Yes
2	Other water feature or swimming pool restriction	The emptying and refilling of a swimming pool, spa, or other water features excluding normal maintenance of water levels due to evaporation, is prohibited.	Yes
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	Yes
3	Other	New or rehabilitated turf shall not be installed in any landscape. Homeowners' Associations shall not require landscaping to be installed at new homes. Homeowners' Associations may require a layer of weed barrier material and three (3) inches of mulch in lieu of landscaping until plants can be installed.	Yes
3	Other - Prohibit use of potable water for construction and dust control	The use of potable City water for construction or grading purposes is prohibited except with recycled water use. Exceptions made for projects nearing completion, and having a public benefit deemed essential to the community by the City Manager or his/her designee.	Yes
4	Landscape - Prohibit certain types of landscape irrigation	All lawn watering with potable water is prohibited. All other landscape water shall be reduced to one day per week, such as for saving trees.	Yes

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
4	Water Features - Restrict water use for decorative water features, such as fountains	The operation of any ornamental fountain is prohibited, unless it contains aquatic life such as koi. Bird baths containing fewer than five (5) gallons of water are exempted.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	Yes
4	Other	Subject to the declaration of a water shortage emergency, no new building permits or will-serve letters will be issued.	Yes
4	Other	New construction permits for pools and spas will not be issued. Pools and spas under construction at the time Stage 4 is declared may be completed and filled.	Yes
4	Other - Prohibit use of potable water for construction and dust control	-	Yes
4	Other	The use of a temporary fire hydrant meter from the City, or otherwise using potable water through a temporary City water service including jumpers is prohibited. The use of potable water from fire hydrants limited to firefighting and related activities, or other activities necessary to maintain the health, safety and welfare of the public.	Yes
4	Other	New meters or water services will not be issued, except meters installed to replace an existing jumper.	Yes
5	Landscape - Prohibit all landscape irrigation	-	Yes

Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
5	Other water feature or swimming pool restriction	Swimming pools, spas, ponds, lakes, and other water features shall be prohibited from filling for any reason including evaporation.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	Use of potable water for agricultural or commercial nursery purposes, except for livestock water, is prohibited.	Yes
5	Other	No potable water shall be used for air conditioning purposes. An exception may be granted for cooling towers at sites such as schools, office buildings, and food facilities, if the equipment is being maintained at a demonstrable level of water use efficiency.	Yes
5	Other	The use of potable water for commercial, manufacturing, or processing purposes shall be reduced in volume by fifty percent.	Yes
NOTES:			

5.5.2 Penalties

Any customer who violates provisions of the Urgency Water Conservation Ordinance 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 the City where the severity is based on the number of violations committed by the user.

For Stages 2 through 5 of the Water Shortage Contingency measures, water use in excess of each customer’s monthly drought limited is prohibited and considered a violation. Notice of the violation will appear on the customer’s monthly water bill and will state a general description of the violation and include appeal and hearing rights and procedures.

The City may terminate water service to any customer or place a flow restricting device on the meter of any customer that exceeds their monthly drought limit for five consecutive months during Stages 2 through 5. The City may also enforce penalties, surcharges, or increased charges incurred by the City as a result of the customer’s violation.

Other violations that do not relate to excess water use will result in the customer receiving a written notice from the City. This notice will include the following:

- Time, date, and place of violation
- General description of the violation
- The means to correct the violation
- Date by which the correction is required (the period for compliance will be shortened depending on any applicable water conservation contingency stage)
- Possible consequences of failing to correct the violation
- Include appeal and hearing rights and procedures

If the customer fails to correct the violation within the specified time period, the City Manager or his/her designees may take one or more of the following actions:

- Pass on any penalties, surcharges, or increased charged incurred by the City as a result of the customer's violation.
- For residential accounts, impose a civil administrative penalty not to exceed one hundred dollars for a first violation, two hundred dollars for a second violation, and five hundred dollars for each additional violation occurring within the same calendar year.
- For commercial industrial, constructions, and irrigation accounts, impose a penalty not to exceed two hundred dollars for a first violation, four hundred dollars for a second violation, and one thousand dollars for each additional violation occurring within the calendar year.
- Terminate water service to the site of the violation.
- Place a flow restricting device on the meter (San Juan Capistrano, Urgency Ordinance No. 1024, June 2015).

5.5.3 Consumption Reduction Methods

Table 5-4 lists the consumption reduction methods that will be used to reduce water use in restrictive stages.

Table 5-4: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods

Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference
1	Other	Stage 1 Water Watch Conservation Measures
2	Other	Stage 2 Water Alert Conservation Measures
3	Other	Stage 3 Water Warning Conservation Measures
4	Other	Stage 4 Water Crisis Conservation Measures
5	Other	Stage 5 Water Emergency Conservation Measures
NOTES:		

5.6 Impacts to Revenue

The actions described above to address a range of water shortage conditions have the potential to impact the City's revenues and expenditures. To assess these impacts, the City calculated the revenue impacts resulting from a 10, 25 and 50 percent reduction in sales as compared to a base year that was based on an estimate of normal year baseline. Other factors incorporated into the analysis included water losses, pricing structure and avoided costs. The results of this analysis are shown below in Table 5-5.

Table 5-5: Revenue Impact Analysis

Demand	Baseline	10%	25%	50%
Water Purchased/Produced (HCF)	3,292,873	2,963,586	2,469,655	1,646,437
Imported Water (HCF)	2,379,633	2,141,669	1,784,725	1,189,816
Local Sources (HCF)	913,241	821,917	684,930	456,620
Water Losses (HCF)	391,223	352,101	293,417	195,612
Water Sales (HCF)	2,901,650	2,611,485	2,176,238	1,450,825
Tier 1 (%)	28.0%	28.0%	28.0%	28.0%
Tier 2 (%)	61.0%	61.0%	61.0%	61.0%
Tier 3 (%)	9.0%	9.0%	9.0%	9.0%
Tier 4 (%)	1.0%	1.0%	1.0%	1.0%
Tier 1 (HCF)	812,462	731,216	609,347	406,231
Tier 2 (HCF)	1,770,007	1,593,006	1,327,505	885,003
Tier 3 (HCF)	261,149	235,034	195,861	130,574
Tier 4 (HCF)	29,017	26,115	21,762	14,508
Total	2,872,634	2,585,370	2,154,475	1,436,317
Revenue				
Tier 1 Rate (\$)	3.59	3.59	3.59	3.59
Tier 2 Rate (\$)	4.99	4.99	4.99	4.99
Tier 3 Rate (\$)	5.41	5.41	5.41	5.41
Tier 4 Rate (\$)	5.41	5.41	5.41	5.41
Tier 1 Revenue	2,916,739	2,625,065	2,187,554	1,458,369
Tier 2 Revenue	8,832,333	7,949,099	6,624,250	4,416,166
Tier 3 Revenue	1,412,813	1,271,532	1,059,610	706,407
Tier 4 Revenue	156,979	141,281	117,734	78,490
Total	\$13,318,864	\$11,986,978	\$9,989,148	\$6,659,432
Fixed Monthly/Bimonthly Charge Revenue	\$4,251,909	\$4,251,909	\$4,251,909	\$4,251,909

2015 URBAN WATER MANAGEMENT PLAN

Demand	Baseline	10%	25%	50%
Total Rate Revenue	\$17,570,773	\$16,238,887	\$14,241,057	\$10,911,341
Revenue Lost		(\$1,331,886)	(\$3,329,716)	(\$6,659,432)
Variable Costs				
Unit Costs				
Tier 1 and 2 Variable Costs (\$/ccf)	\$1.90	\$1.90	\$1.90	\$1.90
Tier 3 and 4 Variable Cost (\$/ccf)	\$2.30	\$2.30	\$2.30	\$2.30
Annual Avoided Cost				
Tier 1 and 2 Avoided Costs (\$/yr)		441,602	920,004	1,226,673
Tier 3 and 4 Avoided Costs (\$/yr)		\$60,064	\$125,134	\$166,845
Total Avoided Costs (\$/yr)		\$501,666	\$1,045,138	\$1,393,517
Net Revenue Change		\$(830,220)	\$(2,284,578)	\$(5,265,915)
Rate Revenue Increase Required		4.96%	14.95%	42.80%

Because the City relies on monthly service charges to support the operation, maintenance and administration of the water system drought conditions have a less of an effect on the revenues and therefore the City's ability to provide water service. A reduction in revenues can be expected due to a reduction in the amount of water that can be delivered; that is largely offset by a reduction in imported water purchased. As listed in Table 5-6, the City will closely monitor its revenue requirements, with the potential for special charges or rate adjustments to ensure that revenue needs during the drought period are met. The City will endeavor to affect a revenue neutral attitude during the shortage to keep impacts to residents and businesses to a minimum. The City keeps accurate track of water usage as meters are currently read monthly. If revenues are anticipated to be in shortfall, the City will call an emergency meeting of the City Council to determine how to proceed. If the emergency period is not expected to last too long, the City's Water Fund Reserve would be available to meet the revenue shortfall. If the emergency period is longer, then an emergency water rate increase would be instituted until the time the emergency period is past.

Table 5-6: Proposed Measures to Overcome Revenue Impacts

Name of Measures
Special Charges or Rate Adjustments
Water Fund Reserve

5.7 Reduction Measuring Mechanism

MWDOC will provide each member agency with water use monthly reports that will compare each member agency's current cumulative retail usage to their allocation baselines.

6 RECYCLED WATER

Recycled water opportunities have continued to grow in southern California as public acceptance and the need to expand local water resources continues to be a priority. Recycled water also provides a degree of flexibility and added reliability during drought conditions when imported water supplies are restricted.

Recycled water is wastewater that is treated through primary, secondary and tertiary processes and is acceptable for most non-potable water purposes such as irrigation, and commercial and industrial process water per Title 22 requirements.

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 to recycled water standards. Each of these agencies provides recycled water where feasible.

The City does not own or operate its own wastewater treatment facilities and is instead part of SOCWA. South Orange County Wastewater Authority (SOCWA) was formed in 2001 as a Joint Powers Authority with ten member agencies, consisting of local retail water agencies and cities that provide water to their residents. SOCWA was created to fulfill the wastewater needs of its ten member agencies, which include: the City, El Toro Water District, Irvine Ranch Water District, City of Laguna Beach, MNWD, City of San Clemente, SCWD, SMWD, Trabuco Canyon Water District, and Emerald Bay Services District (EBSD). Figure 6-1 shows a map of the SOCWA member agencies.

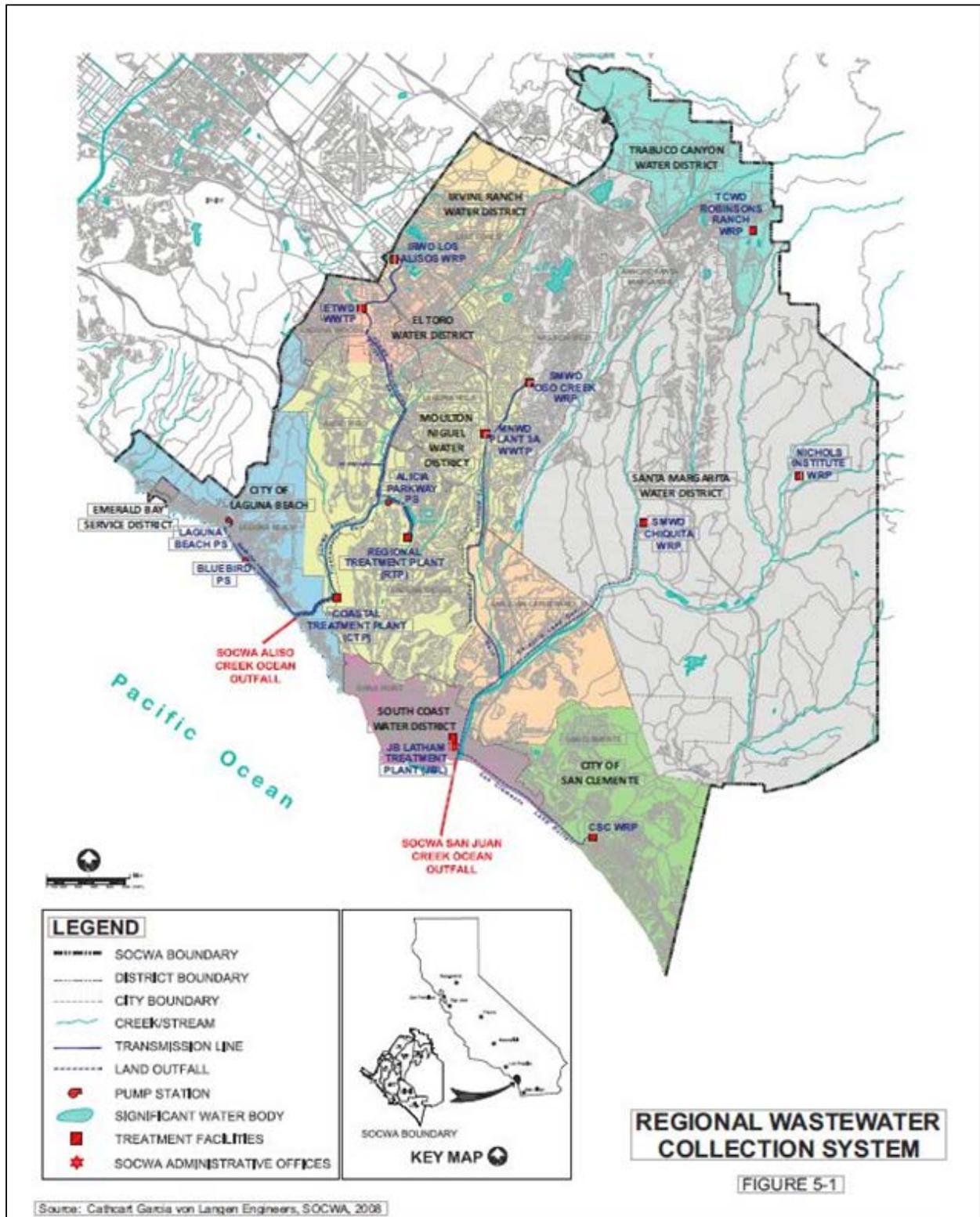


Figure 6-1: SOCWA Member Agencies

6.2 Wastewater Description and Disposal

The City operates and maintains the local sewer collection pipes that feed into the SOCWA's sewer system to convey wastewater to SOCWA's J.B. Latham Treatment Plant (Latham). The City's sewer system includes 120 miles of sewer lines and 2 lift stations. The Latham Plant in Dana Point has a 13 MGD capacity and treats wastewater from the City to secondary effluent standards. The Latham Plant has 4.0 MGD of capacity reserved for the City's wastewater flows. The current total average daily flow tributary to the Latham Plant is 6.0 MGD. Due to changing trends in water use and the preference of upstream discharges to recycled water within their districts, the Latham Plant is not projected to receive much above the 6.0 MGD level of discharge. No recycled water is currently produced at the Latham Plant, so the secondary effluent is conveyed directly to the San Juan Creek Ocean Outfall.

Table 6-1 summarizes the wastewater collected by the City and transported to SOCWA's system in 2015. No wastewater is treated or disposed in the City's service area as SOCWA treats and disposes all of the City's wastewater.

2015 URBAN WATER MANAGEMENT PLAN

Table 6-1: Wastewater Collected Within Service Area in 2015 (AF)

Retail: Wastewater Collected Within Service Area in 2015					
Wastewater Collection			Recipient of Collected Wastewater		
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?
City of San Juan Capistrano	Estimated	5,219	SOCWA	J.B. Latham Treatment Plant	No
Total Wastewater Collected from Service Area in 2015:		5,219			
NOTES:					

6.3 Current Recycled Water Uses

In 1989, the City installed a separate non-potable water system to use lower quality groundwater supply for landscape irrigation of golf courses, parks, recreation areas, greenbelts, schoolyards, highway medians, and industrial uses. The non-potable water system supplies approximately 400 AFY and currently has two producing non-domestic wells, called Mission Street Well and Rosenbaum Well #1. Two previously producing non-potable wells, Hollywood 2A and Rosenbaum #2 have been shut down for over two or more years. Well Site #5 was converted to a groundwater source well for the GWRP in 2011. The Old SJBA #2 well was shut down and a replacement was installed which now supplies the GWRP in 2004.

The recycled water system includes two active wells, one storage reservoir, and approximately 54,000 linear feet of pipe. Currently imported recycled water, marginal quality groundwater from local wells, and a restricted amount of potable water supply the recycled water system. The City claims a historic right to use a maximum of 3,325 AFY of groundwater in the San Juan Basin.

In FY 2014-15, the City sold 502 AF of recycled blend water. FY 2015-16 sale of recycled blend are projected at 485 AF. Current and projected recycled water use are shown in Table 6-2.

2015 URBAN WATER MANAGEMENT PLAN

Table 6-2: Current and Projected Recycled Water Direct Beneficial Use within Service Area (AF)

Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
Name of Agency Producing (Treating) the Recycled Water:		Santa Margarita Water District and Moulton Niguel Water District.						
Name of Agency Operating the Recycled Water Distribution System:		San Juan Capistrano						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040
Agricultural irrigation								
Landscape irrigation (excludes golf courses)		Tertiary	215	1,000	1,070	1,070	1,070	1,070
Golf course irrigation		Tertiary	287	400	400	400	400	400
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other (Provide General Description)								
		Total:	502	1,400	1,470	1,470	1,470	1,470
*IPR - Indirect Potable Reuse								
NOTES: Currently, all recycled water used by the City is produced by SMWD and MNWD. By 2020 (latest 2025), the City expects to be getting almost all of its recycled water from SOCWA.								

The projected 2015 recycled water use from the City’s 2010 UWMP was compared to the 2015 actual recycled water use as shown in Table 6-3. Recycled water for 2015 was projected much higher in the 2010 UWMP as there was no recycled water use in 2015.

The City has converted 502 AFY of non-domestic demand to recycled water in 2013. Since then the City has been working on converting 100 AFY more of domestic demand to recycled water in FY 2016-17.

Table 6-3: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual (AF)

Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)	1,950	215
Golf course irrigation		287
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	<i>Type of Use</i>	
Total	1,950	502
NOTES:		

6.4 Potential Recycled Water Uses

The City is currently using recycled water provided by its neighboring agencies, SMWD and MNWD. This has allowed it to implement and expand its recycled use area. As funding from Local Resources Program (LRP) grants allow, the system will be expanded.

6.4.1 Direct Non-Potable Reuse

The City has the ability to use water from its recycled water system for direct non-potable reuse such as landscape irrigation.

6.4.2 Indirect Potable Reuse

The City does not have the potential for indirect potable reuse (IPR) within its service area.

6.5 Optimization Plan

In Orange County, the majority of recycled water is used for irrigating golf courses, parks, schools, businesses, and communal landscaping. Future recycled water use can be increased by requiring dual piping in new developments, retrofitting existing landscaped areas and constructing recycled water pump stations and transmission pipelines to reach areas that are further from treatment plants.

In order to determine if additional projects are feasible, studies must be performed to determine if the project should be pursued. Feasibility studies should include evaluation of alternatives with a present worth analysis consisting of capital costs (design, environmental reviews, construction, etc.) and operations and maintenance costs (electrical costs for pumps and equipment and maintenance required for the system).

The City will continue to conduct feasibility studies for recycled water and seek out creative solutions such as funding, regulatory requirements, institutional arrangement and public acceptance for recycled water use with Metropolitan and other cooperative agencies.

7 FUTURE WATER SUPPLY PROJECTS AND PROGRAMS

7.1 Water Management Tools

With improvements to the recycled water system, along with conservation efforts, the City can optimize its facilities and more effectively meet projected demands.

7.2 Transfer or Exchange Opportunities

Interconnections with other agencies result in the ability to share water supplies during short term emergency situations or planned shutdowns of major imported systems. San Juan has interconnections with its neighboring agencies. On its central eastern side its connections with SMWD consist of 2 active, and 1 inactive domestic connections, one active recycled connection, one planned domestic connection and one planned recycled connection. On its southern side its connections with SCWD consist of two active domestic connections, and two inactive domestic connections. Also on its southern side it has two active, but unmetered connections with the City of San Clemente. On its northern border it has one active domestic connection, and one active recycled connection.

MWDOC continues to help its retail agencies develop transfer and exchange opportunities that promote reliability within their systems. Therefore, MWDOC will look to help its retail agencies navigate the operational and administrative issues of transfers within the Metropolitan distribution system. Currently, there are no transfer or exchange opportunities.

7.3 Planned Water Supply Projects and Programs

The GWRP has been impacted by the drought and reduced groundwater availability, cutting production to about 2 MGD or less since the late summer of 2015. The City is a member of the SJBA which recently completed its Groundwater Management and Facilities Plan (GWMFP). The GWMFP evaluated the basic feasibility of enhancing groundwater recharge of storm water, and via a series of rubber dams on the lined sections of the San Juan and Trabuco Creeks. The GWMFP also evaluated using live stream recharge using recycled water, and the rubber dams. This program could increase the available supply of groundwater for the GWRP.

The City's 2016-2022 Capital Improvement Program identifies the following planned design and construction projects:

Calle Arroyo Recycled Pipeline – Will bring recycled water from the end of the 12-inch pipeline interconnected with SMWD to meet existing and future recycled water demands.

Recycled Water Service Conversions – convert existing customers using domestic water that are adjacent to existing recycled water supply systems, to the use of recycled water.

Recycled Expansion Grants Application – Conduct engineering studies and California Environmental Quality Act (CEQA) documentation needed to apply for recycled water grants.

Trampas Canyon Recycled Water Reservoir – City looking to purchase 200 AF capacity within the Trampas Canyon Reservoir. This project will allow the City’s recycled water system to expand and meet peak summer demands with recycled water.

#08801 - Joint Regional Water Supply System Capital Replacements – Continued repair, relocation, and upgrading of this line between its connection point at the CM-10 meter from Metropolitan and its connection to the City.

Valve Insertion Program – Inserts valves in lines to better isolate customers from the impacts from line breaks.

760S Zone Pump Station Discharge Line Replacement – Relocates line that has reached the end of its useful life.

Capistrano Royale Fire Flow Pump – Install a new fire flow pump, motor, and related electrical equipment at the Capistrano Royale Booster Pump Station to promote safety and welfare of local residents.

Pump Station Component Replacements – Replace four identified booster pumps needing components as they are vital to system operations.

#11805 - I-5 Utility Relocations – Relocate water and sewer lines at the I-5 interchange through coordination with Caltrans.

#16801 – La Pata Pipeline Relocation – Relocates a section of 24-inch line to accommodate the extension of La Pata Avenue to San Clemente.

7.4 Desalination Opportunities

In 2001, Metropolitan developed a Seawater Desalination Program (SDP) to provide incentives for developing new seawater desalination projects in Metropolitan’s service area. In 2014, Metropolitan modified the provisions of their LRP to include incentives for locally produced seawater desalination projects that reduce the need for imported supplies. To qualify for the incentive, proposed projects must replace an existing demand or prevent new demand on Metropolitan’s imported water supplies. In return, Metropolitan offers two incentive formulas under the program:

- Up to \$340 per AF for 25 years, depending on the unit cost of seawater produced compared to the cost of Metropolitan supplies
- Up to \$475 per AF for 15 years, depending on the unit cost of seawater produced compared to the cost of Metropolitan supplies

Developing local supplies within Metropolitan's service area is part of IRP goal of improving water supply reliability in the region. Creating new local supplies reduce pressure on imported supplies from the SWP and Colorado River.

On May 6th, 2015, the SWRCB approved an amendment to the state's Water Quality Control Plan for the Ocean Waters of California (California Ocean Plan) to address effects associated with the construction and operation of seawater desalination facilities (Desalination Amendment). The amendment supports the use of ocean water as a reliable supplement to traditional water supplies while protecting marine life and

water quality. The California Ocean Plan now formally acknowledges seawater desalination as a beneficial use of the Pacific Ocean and the Desalination Amendment provides a uniform, consistent process for permitting seawater desalination facilities statewide.

If the following projects are developed, Metropolitan's imported water deliveries to Orange County could be reduced. These projects include the Huntington Beach Seawater Desalination Project, the Doheny Desalination Project, and the Camp Pendleton Seawater Desalination Project.

Brackish groundwater is groundwater with a salinity higher than freshwater, but lower than seawater. Brackish groundwater typically requires treatment using desalters.

7.4.1 Groundwater

The City operates the GWRP that has a capacity of 6.2 MGD and treats brackish groundwater. The Plant extracts groundwater and removes iron, manganese, and TDS using reverse osmosis to supplement potable water demands.

7.4.2 Ocean Water

Huntington Beach Seawater Desalination Project – Poseidon Resources LLC (Poseidon), a private company, is developing the Huntington Beach Seawater Desalination Project to be co-located at the AES 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 to provide approximately 10 percent of Orange County's water supply needs.

Over the past several years, Poseidon has been working with OCWD on the general terms and conditions for selling the water to OCWD. OCWD and MWDOC have proposed a few distribution options to agencies in Orange County. The northern option proposes the water be distributed to the northern agencies closer to the plant within OCWD's service area with the possibility of recharging/injecting a portion of the product water into the OC Groundwater Basin. The southern option builds on the northern option by delivering a portion of the product water through the existing OC-44 pipeline for conveyance to the south Orange County water agencies. A third option is also being explored that includes all of the product water to be recharged into the OC Groundwater Basin. Currently, a combination of these options could be pursued.

OCWD's current Long-Term Facilities Plan (LTFP) identifies the Huntington Beach Seawater Desalination project as a priority project and determined the plant capacity of 56,000 AFY as the single largest source of new, local drinking water available to the region. In addition to offsetting imported demand, water from this project could provide OCWD with management flexibility in the OC Groundwater Basin by augmenting supplies into the Talbert Seawater Barrier to prevent seawater intrusion.

In May 2015, OCWD and Poseidon entered into a Term Sheet that provided the overall partner structure in order to advance the project. Based on the initial Term Sheet, Poseidon would be responsible for permitting, financing, design, construction, and operations of the treatment plant while OCWD would purchase the production volume, assuming the product water quality and quantity meet specific contract parameters and criteria. Furthermore, OCWD would then distribute the water in Orange County using one of the proposed distribution options described above.

Currently, the project is in the late-stages of the regulatory permit approval process and Poseidon hopes to obtain the last discretionary permit necessary to construct the plant from the California Coastal Commission (CCC) in 2016. If the CCC permit is obtained, the plant could be operational as early as 2019.

Doheny Desalination Project – In 2013, after five years and \$6.2 million to investigate use of a slant well intake for the Doheny Desalination Project, it was concluded the project was feasible and could produce 15 MGD (16,800 AFY) of new potable water supplies to five participating agencies. These agencies consist of: the City, SCWD, City of San Clemente, Laguna Beach County Water District (LBCWD) and MNWD.

Only SCWD and LBCWD expressed interest in moving forward after work was completed, with the other agencies electing to monitor the work and consider options to subsequently come back into the project while considering other water supply investments.

More recently, LBCWD has had success in using previously held water rights in the OC Groundwater Basin and may elect to move forward with that project instead of ocean desalination. A final decision is pending based on securing the necessary approvals on the groundwater agreement.

SCWD has taken the lead on the desalination project and has hired a consulting team to proceed with project development for the Doheny Desalination Project. Major items scheduled over the next year include:

- Preliminary Design Report and Cost Estimate
- Brine Outfall Analysis
- Environmental Impact Report (EIR) Process
- Environmental Permitting Approvals
- Public Outreach
- Project Funding
- Project Delivery Method
- Economic Analysis

The schedule for this project includes start-up and operation of up to a 5 MGD (5,600 AFY) facility by the end of 2019. SCWD anticipates leaving the option open for other agencies to participate in a larger, 15 MGD facility, with subsequent permitting and construction of additional slant wells and treatment capacity.

Camp Pendleton Seawater Desalination Project – San Diego County Water Authority (SDCWA) is studying a desalination project to be located at the southwest corner of Camp Pendleton Marine Corps Base adjacent to the Santa Margarita River. The initial project would be a 50 (56,000 AFY) or 100 (112,100 AFY) MGD plant with expansions in 50 MGD increments to a maximum capacity of 150 MGD (168,100 AFY), making this the largest proposed desalination plant in the US.

The project is currently in the feasibility study stage and SDCWA is conducting geological surveys, analyzing intake options, and studying the effect on ocean life and routes to bring desalinated water to

2015 URBAN WATER MANAGEMENT PLAN

SDCWA's delivery system. MWDOC and south Orange County agencies are maintaining an interest in the project.

8 UWMP ADOPTION PROCESS

Recognizing that close coordination among other relevant public agencies is key to the success of its UWMP, the City worked closely with entities such as MWDOC to develop and update this planning document. The City also encouraged public involvement by holding a public hearing for residents 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 the City 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 Notice)	7/7/16	Appendix E
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)	5/12/16	Appendix E
Held public hearing	7/19/16	Appendix E
Adopted UWMP	7/19/16	Appendix F
Submitted UWMP to DWR	8/19/16	-
Submitted UWMP to the California State Library and city or county within the supplier’s service area	8/19/16	-
Made UWMP available for public review	8/19/16	-

This UWMP will be considered for adoption by the City Council on July 19, 2016. A copy of the adopted resolution will be provided in Appendix F to replace the current draft copy.

A change from the 2004 legislative session to the 2009 legislative session required the City to notify any city or county within its service area at least 60 days prior to the public hearing. As shown in Table 8-2, the City sent a Letter of Notification to the County of Orange and cities within its service area on May 12, 2016 to state that it was in the process of preparing an updated UWMP (Appendix E).

Table 8-2: Notification to Cities and Counties

Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
Dana Point	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mission Viejo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
County Name	60 Day Notice	Notice of Public Hearing
Orange County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NOTES:		

8.1 Public Participation

The City encouraged community participation in developing its urban water management planning efforts. Public meetings were held prior to adoption of the previous plans. For this update to the UWMP, a public meeting was held on July 19, 2016 to review and receive comments on the draft plan before the City Council approval.

Notices of public meetings were published in the local newspaper and distributed through utility bills. Copies of the draft plan were available at the City Clerk’s and Utilities Department offices. A copy of the published Notice of Public Hearing is included in Appendix E.

8.2 Agency Coordination

The City’s water supply planning relates to the policies, rules, and regulations of its regional and local water providers. The City is dependent on imported water from Metropolitan through MWDOC, its regional wholesaler. The City is also dependent on groundwater from the San Juan Basin. In addition to imported water and groundwater supplies, the City incorporates recycled water treated by SOCWA into its water supply.

8.3 UWMP Submittal

8.3.1 Review of 2010 UWMP Implementation

As required by California Water Code, the City summarized Water Conservation Programs implemented to date, and compared them to those planned in its 2010 UWMP.

8.3.2 Comparison of 2010 Planned Water Conservation Programs with 2015 Programs

As a signatory to the Memorandum of Understanding Regarding Urban Water Conservation in California, the City's commitment to implement BMP-based water use efficiency program continues today. For the City's specific achievements in the area of conservation, please see Section 4 of this Plan.

Comparison of 2010 Projected Recycled Water Use with 2015 Actual Use

Current recycled water use for the City in 2015 was about 31 percent less than previously forecasted for 2015 in the 2010 UWMP, as illustrated in Table 6-4.

8.3.3 Filing of 2015 UWMP

The City Council reviewed the Final Draft Plan on July 19, 2016. The five-member City Council approved the 2015 UWMP on July 19, 2016. See Appendix F for the resolution approving the Plan.

By August 2016, the City's Adopted 2015 UWMP was filed with DWR, California State Library, County of Orange, and cities within its service area, if applicable.

REFERENCES

- California Department of Water Resources, 2015. Urban Water Management Plans, Guidebook for Urban Water Suppliers.
- CDM Smith, 2016. Final Technical Memorandum #1 of Orange County Reliability Study.
- Department of Water Resources, 2015. State Water Project Final Delivery Capability Report 2015.
- Metropolitan Water District of Southern California, 2016. Metropolitan Urban Water Management Plan 2015.
- Municipal Water District of Orange County, 2015. Orange County Reliability Study.
- Municipal Water District of Orange County, 2015. Water Shortage Allocation Model.
- Orange County Water District, 2014. OCWD Engineer's Report.
- Orange County Water District, 2015. OCWD Groundwater Management Plan 2015 Update.
- Orange County Water District. (2015). Groundwater Replenishment Study [Brochure].
- San Diego County Water Authority, 2003. Quantification Settlement Agreement.
- San Juan Capistrano, 2014. City of San Juan Capistrano 5-Year Capital Improvement Projects.
- San Juan Capistrano, 2014. Comprehensive Water, Non Potable Water and Sewer Rate Study Report.
- San Juan Capistrano, 2015. Water Quality Report.
- San Juan Capistrano, California, Municipal Code Ordinance No. 1024, (2015).
- Southern California Association of Governments, 2012. 5th Cycle Regional Housing Needs Assessment Final Allocation Plan.
- U.S. Department of the Interior Bureau of Reclamation, 2012. Colorado River Basin Study.
- Urban Water Management Planning Act, California Water Code § 10610-10656 (2010).
- Water Conservation Act of 2009, California Senate SB x7-7, 7th California Congress (2009).
- Water Systems Optimization, 2016. California Department of Water Resources: Water Audit Manual.

APPENDIX A

UWMP Checklist



UWMP Checklist

This checklist is developed directly from the Urban Water Management Planning Act and SB X7-7. It is provided to support water suppliers during preparation of their UWMPs. Two versions of the UWMP Checklist are provided – the first one is organized according to the California Water Code and the second checklist according to subject matter. The two checklists contain duplicate information and the water supplier should use whichever checklist is more convenient. In the event that information or recommendations in these tables are inconsistent with, conflict with, or omit the requirements of the Act or applicable laws, the Act or other laws shall prevail.

Each water supplier submitting an UWMP can also provide DWR with the UWMP location of the required element by completing the last column of either checklist. This will support DWR in its review of these UWMPs. The completed form can be included with the UWMP.

If an item does not pertain to a water supplier, then state the UWMP requirement and note that it does not apply to the agency. For example, if a water supplier does not use groundwater as a water supply source, then there should be a statement in the UWMP that groundwater is not a water supply source.

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location <i>(Optional Column for Agency Use)</i>
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 1.1
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 8.2
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Section 8.1
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 1.3.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 2.2.1
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 2.2.2
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 2.2.2
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Section 2.2.2
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 2.3.1 and 2.4.3
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 2.3.4 and Appendix H
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 2.4.5
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 2.5.2
10608.20(e)	Retail suppliers shall provide baseline daily per capita water use, urban water use target, interim urban water use target, and	Baselines and Targets	Chapter 5 and App E	Section 2.5.2.2

	compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.			
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 2.5.2.2
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 2.5.2.2
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	Section 2.5.2.2
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Section 2.5.2.2
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Section 3.4
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 3.3
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 3.3.1
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 3.3.1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 3.3.1
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 3.3.1
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of	System Supplies	Section 6.2.4	Section 3.3.2

	groundwater pumped by the urban water supplier for the past five years			
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Section 3.3 and 3.4
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Section 7.2
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 7
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 7.4
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	Section 3.4 and Table 1-4
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 6.1
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Section 6.2
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 6.2
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	Section 6.3
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	Section 6.4
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in	System Supplies (Recycled Water)	Section 6.5.4	Section 6.3 and 6.4

	comparison to uses previously projected.			
10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.4
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 3.3 and 7.1
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 3.6
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 3.6.5
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 3.6
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 3.6.2.3
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 3.7
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 5.2
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 5.3
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 5.4
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 5.5.1
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Section 5.5.3
10632(a)(6)	Indicated penalties or charges for excessive	Water Shortage Contingency	Section 8.3	Section

	use, where applicable.	Planning		5.5.2
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 5.6
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Appendix D
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 5.7
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Section 4
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	Section 4 and Appendix J
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 8.1
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Appendix E
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Section 8.3.3
10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 8.3.3
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Section 8.1

	public hearing, and held a public hearing about the plan.			
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Appendix E
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Appendix F
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Section 8.3.3
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 8.3.3
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Section 8.3.3
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Section 8

APPENDIX B

Standardized Tables



Table 2-1 Retail Only: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA3010030	City of San Juan Capistrano	11,474	8,531
TOTAL		11,474	8,531
NOTES:			

Table 2-2: Plan Identification

Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i> <i>drop down list</i>
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input checked="" type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	Orange County 20x2020 Regional Alliance
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)		
NOTES:			

Table 2-3: Agency Identification

Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input type="checkbox"/>	UWMP Tables Are in Calendar Years
<input checked="" type="checkbox"/>	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
7/1	
Units of Measure Used in UWMP (select from Drop down)	
Unit	AF
NOTES:	

Table 2-4 Retail: Water Supplier Information Exchange
--

The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.

MWDOC

NOTES:

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040
	39,047	41,991	42,026	42,132	42,162	42,119

NOTES:

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
<i>Use Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered <i>Drop down list</i>	Volume
Single Family		Drinking Water	3,784
Multi-Family		Drinking Water	1,128
Commercial	Includes Governmental, Institutional, and Industrial	Drinking Water	751
Landscape		Drinking Water	1,677
Other		Drinking Water	222
Losses		Drinking Water	467
TOTAL			8,029
NOTES:			

Table 4-2 Retail: Demands for Potable and Raw Water - Projected

Use Type <i>(Add additional rows as needed)</i>	Additional Description <i>(as needed)</i>	Projected Water Use <i>Report To the Extent that Records are Available</i>				
<i>Use Drop down list</i> <i>May select each use multiple times</i> <i>These are the only Use Types that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040
Single Family		3,402	3,402	3,402	3,402	3,402
Multi-Family		1,014	1,014	1,014	1,014	1,014
Commercial	Includes Governmental, Institutional, and Industrial	675	675	675	675	675
Landscape		1,508	1,508	1,508	1,508	1,508
Other		200	200	200	200	200
Losses		420	420	420	420	420
TOTAL		7,218	7,218	7,218	7,218	7,218
NOTES:						

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	8,029	7,218	7,218	7,218	7,218	7,218
Recycled Water Demand* <i>From Table 6-4</i>	502	1,400	1,470	1,470	1,470	1,470
TOTAL WATER DEMAND	8,531	8,618	8,688	8,688	8,688	8,688

NOTES:

Table 2-3 Retail: 12 Month Water Loss Audit Reporting

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
07/2014	881

NOTES:

Table 4-5 Retail Only: Inclusion in Water Use Projections

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) <i>Drop down list (y/n)</i>	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	Section 4.1
Are Lower Income Residential Demands Included In Projections? <i>Drop down list (y/n)</i>	Yes

NOTES:

Table 5-1 Baselines and Targets Summary*Retail Agency or Regional Alliance Only*

Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	1999	2008	229	206	183
5 Year	2003	2007	229		

*All values are in Gallons per Capita per Day (GPCD)

NOTES:

Table 5-2: 2015 Compliance
Retail Agency or Regional Alliance Only

Actual 2015 GPCD*	2015 Interim Target GPCD*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
184	206	Yes
<i>*All values are in Gallons per Capita per</i>		
NOTES:		

Table 6-1 Retail: Groundwater Volume Pumped

Groundwater Type <i>Drop Down List</i> <i>May use each category multiple times</i>	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	San Juan Groundwater Basin	1,435	3,673	3,607	3,671	2,572
TOTAL		1,435	3,673	3,607	3,671	2,572
NOTES:						

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

Wastewater Collection			Recipient of Collected Wastewater		
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected in 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>
City of San Juan Capistrano	Estimated	5,219	SOCWA	J.B. Latham Treatment Plant	No
Total Wastewater Collected from Service Area in 2015:		5,219			
NOTES:					

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015



No wastewater is treated or disposed of within the UWMP service area.
The supplier will not complete the table below.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Name of Agency Producing (Treating) the Recycled Water:		Santa Margarita Water District and Moulton Niguel Water District						
Name of Agency Operating the Recycled Water Distribution System:		San Juan Capistrano						
Beneficial Use Type <i>These are the only Use Types that will be recognized by the DWR online submittal tool</i>	General Description of 2015 Uses	Level of Treatment <i>Drop down list</i>	2015	2020	2025	2030	2035	2040
Agricultural irrigation								
Landscape irrigation (excludes golf courses)		Tertiary	215	1,000	1,070	1,070	1,070	1,070
Golf course irrigation		Tertiary	287	400	400	400	400	400
Commercial use								
Industrial use								
Geothermal and other energy production								
Seawater intrusion barrier								
Recreational impoundment								
Wetlands or wildlife habitat								
Groundwater recharge (IPR)*								
Surface water augmentation (IPR)*								
Direct potable reuse								
Other (<i>Provide General Description</i>)								
Total:			502	1,400	1,470	1,470	1,470	1,470

**IPR - Indirect Potable Reuse*

NOTES: Currently, all recycled water used by the City is produced by SMWD and MNWD. By 2020 (latest 2025), the City expects to be getting almost all of its recycled water from SOCWA.

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

Use Type		2010 Projection for 2015	2015 Actual Use
Agricultural irrigation			
Landscape irrigation (excludes golf courses)		1,950	215
Golf course irrigation			287
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	<i>Type of Use</i>		
Total		1,950	502

NOTES:

Table 6-6 Retail: Methods to Expand Future Recycled Water Use

<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.
Section 6.4	Provide page location of narrative in UWMP

Table 6-7 Retail: Expected Future Water Supply Projects or Programs

<input type="checkbox"/>	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.
<input checked="" type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
Section 7.3	Provide page location of narrative in the UWMP

Table 6-8 Retail: Water Supplies — Actual

Water Supply	Additional Detail on Water Supply	2015	
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		Actual Volume	Water Quality <i>Drop Down List</i>
Groundwater	San Juan Groundwater Basin	2,572	Drinking Water
Purchased or Imported Water	MWDOC	5,457	Drinking Water
Recycled Water		502	Recycled Water
Total		8,531	
NOTES:			

Table 6-9 Retail: Water Supplies — Projected

Table 6-9 Retail: Water Supplies — Projected						
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>				
<i>Drop down list</i> <i>May use each category multiple times.</i> <i>These are the only water supply categories that will be recognized by the WUEdata online submittal tool</i>		2020	2025	2030	2035	2040
		Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume	Reasonably Available Volume
Groundwater	GWRP	4,800	4,800	4,800	4,800	4,800
Groundwater	Domestic Well	500	500	500	500	500
Purchased or Imported Water	MWDOC	1,918	1,918	1,918	1,918	1,918
Recycled Water	incl. non-domestic	1,400	1,470	1,470	1,470	1,470
Total		8,618	8,688	8,688	8,688	8,688

NOTES: Recycled Water supply includes 350 AF available supply from the City's non-domestic well that is blended with recycled water.

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year <i>If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	1990-2014		100%
Single-Dry Year	2014		109%
Multiple-Dry Years 1st Year	2012		109%
Multiple-Dry Years 2nd Year	2013		109%
Multiple-Dry Years 3rd Year	2014		109%
NOTES:			

Table 7-2 Retail: Normal Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply totals <i>(autofill from Table 6-9)</i>	8,618	8,688	8,688	8,688	8,688
Demand totals <i>(autofill from Table 4-3)</i>	8,618	8,688	8,688	8,688	8,688
Difference	0	0	0	0	0
NOTES:					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

	2020	2025	2030	2035	2040
Supply totals	9,394	9,470	9,470	9,470	9,470
Demand totals	9,394	9,470	9,470	9,470	9,470
Difference	0	0	0	0	0
NOTES:					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison

		2020	2025	2030	2035	2040
First year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0
Second year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0
Third year	Supply totals	9,394	9,470	9,470	9,470	9,470
	Demand totals	9,394	9,470	9,470	9,470	9,470
	Difference	0	0	0	0	0

NOTES:

**Table 8-1 Retail
Stages of Water Shortage Contingency Plan**

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition <i>(Narrative description)</i>
1		A Stage 1 Water Watch exists when the City determines a water supply shortage exists and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions
2		A Stage 2 Water Alert exists when the City determines a water supply shortage and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
3		A Stage 3 Water Warning when the City determines a water supply shortage and consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
4		A Stage 4 Water Crisis applies when the City determines, a water supply shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.
5		A Stage 5 Water Emergency applies when the City determines a water supply shortage or threatened shortage exists and a consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions.

¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.

NOTES: The City does not have percent supply reduction per each stage of its Water Shortage Contingency Plan

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions on End Users <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>	Penalty, Charge, or Other Enforcement? <i>Drop Down List</i>
Permanent Year-Round	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Malfunctions in user’s plumbing, distribution, or irrigation system must be corrected in no more than 24 hours of City notification.	No
Permanent Year-Round	Landscape - Limit landscape irrigation to specific times	Irrigating vegetated area is prohibited any day of the week between 9:00 am and 6:00 pm except by hand watering with an automatic shutoff nozzle or repairing an irrigation system for very short periods of time.	No
Permanent Year-Round	Landscape - Other landscape restriction or prohibition	Watering of any landscape is prohibited while it is raining or within 48 hours of measurable rainfall of one tenth inch or more.	No
Permanent Year-Round	Landscape - Restrict or prohibit runoff from landscape irrigation	Operation of landscape irrigation systems shall minimize overspray and/or excessive runoff onto impervious surfaces.	No
Permanent Year-Round	Other	Irrigation with potable water of landscapes outside of newly constructed buildings inconsistent with regulations established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited.	No
Permanent Year-Round	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	No
Permanent Year-Round	Other	Commercial car wash facilities must use mechanical automatic car wash facilities with water recycling equipment, hoses with timers, hoses with an automatic shutoff device, and/or use of bucket and hand washing.	No
Permanent Year-Round	Other	Washing of equipment or machinery is prohibited unless hose is equipped with an automatic shutoff device. Wash water must be discharged into the sanitary sewer system through an appropriate treatment system.	No
Permanent Year-Round	Other	Cleaning exterior of any structure with water is prohibited unless hose is equipped with an automatic shutoff device. Wash water must be prevented from discharging to the storm water drainage system.	No
Permanent Year-Round	Other - Prohibit use of potable water for washing hard surfaces	-	No
Permanent Year-Round	Other water feature or swimming pool restriction	Emptying and refilling a swimming pool is prohibited except under compliance with public health regulations. Discharge of pool or spa filter backwash water to storm drain is prohibited. All pools and spas shall be equipped with a water recirculation device.	No

Permanent Year-Round	Water Features - Restrict water use for decorative water features, such as fountains	The use of water to operate or maintain levels in decorative fountains, basins, ponds, lakes, and waterways is prohibited unless a recirculation device is in use.	No
Permanent Year-Round	Other	No single pass cooling systems shall be permitted in new connections to the potable water system.	No
Permanent Year-Round	Other	New commercial laundry facilities shall be equipped with a water reclamation system for reuse of rinse water. Laundromats and common area laundry rooms shall install high efficiency clothes washing machines, as older machines are replaced.	No
Permanent Year-Round	CII - Lodging establishment must offer opt out of linen service	-	No
Permanent Year-Round	CII - Restaurants may only serve water upon request	-	No
Permanent Year-Round	CII - Commercial kitchens required to use pre-rinse spray valves	-	No
Permanent Year-Round	Other - Prohibit use of potable water for construction and dust control	-	No
Permanent Year-Round	Other	No person may use water from any fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining City permission.	No
Permanent Year-Round	Other	Indiscriminate running of water which is wasteful and without reasonable purpose is prohibited.	No
Permanent Year-Round	Other	Every person shall minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff. Gutter flooding is specifically prohibited.	No
2	Landscape - Limit landscape irrigation to specific days	Outdoor irrigation of ornamental landscapes or turf with potable water will be limited to no more than two (2) days per week on an assigned schedule established by the City.	Yes
2	Landscape - Prohibit certain types of landscape irrigation	Irrigation of ornamental turf with potable water on medians is prohibited.	Yes
2	Other - Prohibit use of potable water for washing hard surfaces	-	Yes
2	Other	Cleaning of structures, using water from a hose, shall be prohibited.	Yes
2	Other water feature or swimming pool restriction	The emptying and refilling of a swimming pool, spa, or other water features excluding normal maintenance of water levels due to evaporation, is prohibited.	Yes
3	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	Yes
3	Other	New or rehabilitated turf shall not be installed in any landscape. Homeowners' Associations shall not require landscaping to be installed at new homes. Homeowners' Associations may require a layer of weed barrier material and three (3) inches of mulch in lieu of landscaping until plants can be installed.	Yes

3	Other - Prohibit use of potable water for construction and dust control	The use of potable City water for construction or grading purposes is prohibited except with recycled water use. Exceptions made for projects nearing completion, and having a public benefit deemed essential to the community by the City Manager or his/her designee.	Yes
4	Landscape - Prohibit certain types of landscape irrigation	All lawn watering with potable water is prohibited. All other landscape water shall be reduced to one day per week, such as for saving trees.	Yes
4	Water Features - Restrict water use for decorative water features, such as fountains	The operation of any ornamental fountain is prohibited, unless it contains aquatic life such as koi. Bird baths containing fewer than five (5) gallons of water are exempted.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	-	Yes
4	Other	Subject to the declaration of a water shortage emergency, no new building permits or will-serve letters will be issued.	Yes
4	Other	New construction permits for pools and spas will not be issued. Pools and spas under construction at the time Stage 4 is declared may be completed and filled.	Yes
4	Other - Prohibit use of potable water for construction and dust control	-	Yes
4	Other	The use of a temporary fire hydrant meter from the City, or otherwise using potable water through a temporary City water service including jumpers is prohibited. The use of potable water from fire hydrants limited to firefighting and related activities, or other activities necessary to maintain the health, safety and welfare of the public.	Yes
4	Other	New meters or water services will not be issued, except meters installed to replace an existing jumper.	Yes
5	Landscape - Prohibit all landscape irrigation	-	Yes
5	Other water feature or swimming pool restriction	Swimming pools, spas, ponds, lakes, and other water features shall be prohibited from filling for any reason including evaporation.	Yes
5	Landscape - Prohibit certain types of landscape irrigation	Use of potable water for agricultural or commercial nursery purposes, except for livestock water, is prohibited.	Yes
5	Other	No potable water shall be used for air conditioning purposes. An exception may be granted for cooling towers at sites such as schools, office buildings, and food facilities, if the equipment is being maintained at a demonstrable level of water use efficiency.	Yes
5	Other	The use of potable water for commercial, manufacturing, or processing purposes shall be reduced in volume by fifty percent.	Yes

NOTES:

**Table 8-3 Retail Only:
Stages of Water Shortage Contingency Plan - Consumption Reduction Methods**

Stage	Consumption Reduction Methods by Water Supplier <i>Drop down list</i> <i>These are the only categories that will be accepted by the WUEdata online submittal tool</i>	Additional Explanation or Reference <i>(optional)</i>
1	Other	Stage 1 Water Watch Conservation Measures
2	Other	Stage 2 Water Alert Conservation Measures
3	Other	Stage 3 Water Warning Conservation Measures
4	Other	Stage 4 Water Crisis Conservation Measures
5	Other	Stage 5 Water Emergency Conservation Measures
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply	8,734	8,734	8,734

NOTES:

Table 10-1 Retail: Notification to Cities and Counties

City Name	60 Day Notice	Notice of Public Hearing
Dana Point	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Mission Viejo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
County Name <i>Drop Down List</i>	60 Day Notice	Notice of Public Hearing
Orange County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
NOTES:		

APPENDIX C

Groundwater Management Plan



A copy of the San Juan Basin GWMP can be found at <http://www.sjbauthority.com/assets/downloads/20131126%20FINAL%20SJB%20SJBGFMP.pdf>

APPENDIX D

City Ordinance



Ord #1024 replaces Ord. # 941, 1017, and 1023

URGENCY ORDINANCE NO. 1024

AN URGENCY ORDINANCE OF THE CITY COUNCIL OF SAN JUAN CAPISTRANO, CALIFORNIA, AMENDING TITLE 6, CHAPTER 12, OF THE SAN JUAN CAPISTRANO MUNICIPAL CODE PERTAINING TO WATER CONSERVATION.

WHEREAS, the Governor of the State of California has declared a drought in the State, and the State of California Water Resources Control Board (SWRCB) has promulgated emergency regulations applicable to all water consumers and all urban water suppliers (including the City of San Juan Capistrano) to conserve water; and

WHEREAS, Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations in certain drought years in order to: "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water, to promote water recycling or water conservation, to require curtailment of diversions when water is not available under the diverter's priority of right, or in furtherance of any of the foregoing, to require reporting of diversion or use or the preparation of monitoring reports;" and

WHEREAS, on August 19, 2014, the City declared a Stage 2 Water Shortage Contingency Plan and adopted Water Conservation Ordinance No. 1017; and

WHEREAS, on May 5, 2015, the City amended the Stage 2 Water Shortage Contingency Plan and adopted Water Conservation Ordinance No. 1023; and

WHEREAS, on May 5, 2015, the SWRCB approved the emergency regulations, which required, among other things, the City to immediately reduce water use by 28% compared to 2013, beginning in June 2015; and

WHEREAS, the adoption and implementation of the City's amended ordinance requires immediate action of an Urgency Ordinance to comply with the SWRCB May 5, 2015, directive; and

WHEREAS, the City must continue to report its progress to implement the emergency regulations, provide descriptive statistics on water conservation compliance along with enforcement efforts, and understands that the SWRCB expects the City to have taken necessary actions to reduce water use by 28%;

WHEREAS, reducing water use by 28% requires immediate action in adopting an Urgency Ordinance to add an additional water shortage stage with additional restrictions;

NOW, THEREFORE THE CITY COUNCIL OF SAN JUAN CAPISTRANO DOES
HEREBY ORDAIN AS FOLLOWS:

SECTION 1: Authority. This Urgency Ordinance amending Title 6, Chapter 12, of the San Juan Capistrano Municipal Code is enacted pursuant to Water Code §§ 375, et seq. and Government Code §§ 36931 et seq.; 37100 and 38742.

SECTION 2: Findings.

- A. The findings made by the City Council in Ordinance No. 941, Ordinance No. 1017, and Ordinance No. 1023 are hereby incorporated by reference and adopted as findings herein.
- B. Severe drought conditions continue to exist statewide, and such conditions threaten the City's future ability to meet all of its water demands. Such conditions have also resulted in the State imposing mandatory reductions on total water use on urban water suppliers throughout California that must be implemented immediately.
- C. The current drought conditions represent a current and immediate threat to the preservation of the public peace, health, safety, and welfare of the City, and adoption of an urgency ordinance that will take effect immediately pursuant to Government Code §§ 36934 and 36937(b) and Water Code § 376 is justified and legally necessary to ensure the City is in compliance with the SWRCB emergency regulations.
- D. In order to immediately comply with the SWRCB emergency regulation and ensure local water supplies remain sustainable, the City Council finds that this ordinance and the amendments set forth herein must be adopted as an urgency ordinance, effective upon adoption, to protect the public health, safety and welfare, while also preventing unnecessary harm to the City's economy and lawful existing water users which would result without amending Ordinance No. 1017 and Ordinance No. 1023.

SECTION 3: Title 6, Chapter 12, is hereby amended to read as follows:

Sec. 6-12.01. Short Title.

This chapter may be cited as the Water Conservation Ordinance of the City of San Juan Capistrano. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.02. Purpose.

The purpose of this chapter is to establish standards and procedures for year-round water conservation, to promote the efficient use of water, to reduce or eliminate the waste of water in the City, to complement the City's water quality regulations and

urban runoff reduction efforts, and to enable implementation of the City's water shortage contingency measures. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.03. Definitions.

For the purposes of this chapter, unless otherwise apparent from the context, certain words and phrases used in this chapter are defined as follows:

"Billing cycle" shall mean the billing period in which a customer's water use is measured for purposes of calculating the amount of the water service fees that shall be collected for the water service provided.

"Calculated water budget" means the water budget calculated each month by the City for each customer.

"CCF" shall mean one hundred cubic feet.

"City" shall mean the City of San Juan Capistrano, Orange County, California.

"City Water Service Area" shall mean the City of San Juan Capistrano, Orange County, California, and adjoining sections of other cities and unincorporated areas with water service provided by the City of San Juan Capistrano.

"Customer" shall mean a person who, according to the City's records, has an account with the City to receive water service to a parcel.

"Effective date" shall mean the date the ordinance adopting this chapter becomes effective.

"Enforcing attorney" shall mean the City Attorney, acting as counsel to the City of San Juan Capistrano and his/her designee, or the District Attorney or City Prosecutor, which counsel is authorized to take enforcement action as described herein.

"Impervious surface" shall mean a constructed or modified surface that cannot effectively infiltrate rainfall. The term includes, but is not limited to, sidewalks, driveways, v-ditches, gutters and roadways.

"Major water users" shall mean those customers within any specific customer classification who used or consumed more than the mathematical average use for that classification during the previous billing period. At the discretion of the City Manager, and based on the severity of shortage, this definition may be expanded to include all customers using more than nine (9) CCF of water per month.

"Monthly Drought Limit" shall mean the amount of water each customer is allowed to use each billing cycle to avoid incurring penalties for excessive water use when a Stage 2 or higher water shortage stage has been declared. The basis for

calculating a customer's monthly drought limit shall be established in the resolution adopted by the City Council declaring the applicable stage pursuant to Section 6-12.06.

"Median" shall mean a landscaped area within traffic lanes.

"Nonessential water use" shall mean the application or use of water for functions or additional activities that do not have any health or safety impacts, are not required by regulation, and are not part of the core function or business process at a site. This would include, but not be limited to, uses such as the watering of planters and landscape at a car wash, the washing of cars on display at a car dealer, and other activities that a reasonable person would concur will reduce extra use of water, while not affecting a given enterprise in a fundamental way.

"Parkway" shall mean a landscaped area adjacent to a sidewalk and/or roadway ten (10) feet wide or less.

"Paved surface" shall mean any asphalt or concrete street, driveway, alley, gutter, sidewalk, walkway, or other surface impermeable to water.

"Person" shall mean any natural person, property owner, renter, or lessee, as well as any corporation, partnership, government entity or subdivision, trust, estate, cooperative association, homeowners' association, joint venture, business entity, or other similar entity, or the property management company, property manager, agent, employee or representative of any of the above.

"Properly programmed" shall refer to a weather-based or sensor-based irrigation controller that has been programmed according to the manufacturer's instructions and site-specific conditions.

"Quasi-public entity" shall mean an entity, other than a governmental agency, whether characterized by statute as a public corporation, public instrumentality, or otherwise, that is expressly created, by statute, for the purpose of administration of a state or local function.

"Sensor-based irrigation controller" shall mean an irrigation controller that operates based on input received from any combination of sensors, such as rain, solar radiation, and soil moisture sensor, installed within and/or around the irrigated landscape area.

"Stormwater drainage system" shall mean street, street gutter, sidewalk, alleyway, channel, storm drain, constructed drain, lined diversion structure, wash area, inlet, outlet or other facility, which is a part of or tributary to the county-wide stormwater runoff system and owned, operated, maintained or controlled by the County of Orange, the Orange County Flood Control District or any National Pollutant Discharge Elimination System (NPDES) permit co-permittee city, and used for the purpose of collecting, storing, transporting, or disposing of stormwater.

"Urban runoff" shall mean all flows in the stormwater drainage system and consists of stormwater and non-stormwater flows.

"Water waste" shall mean uses of water that are prohibited or limited, going beyond the purpose of necessary or intended use, including area runoff, and which could reasonably be prevented.

"Water Conservation Coordinator" is the City Manager or his/her designee.

"Water Quality Regulations" are the stormwater regulations in Chapter 14 of Title 8 of the San Juan Capistrano Municipal Code.

"Weather-based irrigation controller" shall mean an irrigation controller that operates based on evapotranspiration rates and historic or real-time weather data. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.04. Application.

This chapter shall apply within the City's Water Service Area, which includes the corporate boundaries of the City and those areas and properties outside the City's boundaries connected to the City's water distribution system, and that receive water service from the City. Compliance with the provisions of this chapter shall be a condition of water service within this Water Service Area. If any conflict or difference is noted between this chapter and the City's Landscape Water Conservation Standards (Title 9, Chapter 3, Article 5, Section 9-3.527), the more restrictive shall apply. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.05. Mandatory Restrictions on Water Waste at All Times.

The following activities or measures are in effect year-round, regardless of whether or not a water shortage stage has been declared. During water shortage stages, additional and more restrictive measures may be put in place. These are described in Section 6-12.06.

(a) **Repair of Plumbing, Sprinkler and Irrigation System.** Any owner, manager, or person responsible for the day-to-day operation of any premises shall within twenty-four (24) hours after such person has been notified of leaks, breaks, or defects, initiate steps to repair any leaking, broken or defective water pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or irrigation systems, or distribution systems which cause or may cause water waste or runoff from such, and shall thereafter diligently and promptly pursue such repair work to completion within a reasonable amount of time, as determined by the City Manager or his/her designee, unless a variance is obtained from the City.

(b) **Watering/Irrigation.**

- (1) No person shall water his/her lawn or landscaping or permit his/her lawn or landscaping to be watered between the hours of 9:00 a.m. and 6:00 p.m., except as provided below:
 - (A) Persons may operate the irrigation system between the hours of 9:00 a.m. and 6:00 p.m. for the purpose of installing, repairing or routine maintenance of the same.
 - (B) Persons may water their lawn or landscaping between the hours of 9:00 a.m. and 6:00 p.m. using any of the following methods:
 - (i) Drip, bubbler, or soaker irrigation hardware or emitters;
 - (ii) By hand, using a bucket; and/or
 - (iii) By hand, using a hose with an automatic shutoff nozzle or a hose-end sprinkler with a radius of not more than ten (10) feet, if such sprinkler causes no overspray or runoff.
- (2) No person shall allow lawns, groundcover, shrubbery, other landscape material, or open ground to be watered at any time while it is raining or within 48 hours of measurable rainfall of one tenth (1/10) inch or more. Automatic irrigation controllers may be turned off manually, or connected to a rain shutoff device.
- (3) Effective July 1, 2010, all irrigation controllers associated with dedicated landscape meters shall have a rain shutoff device which overrides the program in the event of rainfall.
- (4) Landscape irrigation system(s) shall be adjusted and operated to eliminate overspray and/or runoff onto impervious surfaces such as sidewalks, driveways, V-ditches, gutters and roadways.
- (5) The irrigation with potable water of landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development is prohibited.
- (c) Washing of Vehicles. No person shall use a water hose to wash any car, truck, boat, trailer, bus, recreational vehicle, camper, tractor, or any other vehicle, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle. All wash water from vehicle washing/cleaning activity must be prevented from discharging to the stormwater drainage system.
- (d) Commercial Car Washes.

- (1) Commercial car wash facilities, including automotive retailers, shall not permit the washing of any boat or vehicle in such facility or on its premises, other than by the following methods:
 - (A) Use of mechanical automatic car wash facilities utilizing water recycling equipment;
 - (B) Use of a hose that operates on a timer for limited time periods and shuts off automatically at the expiration of the time period;
 - (C) Use of a hose equipped with an automatic shutoff nozzle; and/or
 - (D) Use of bucket and hand washing.
- (2) All wash/rinse water must be captured and recycled or discharged into the sanitary sewer system through an appropriate treatment system, after obtaining a special discharge permit from the South Orange County Wastewater Authority.
- (3) All new commercial conveyor car wash facilities shall be equipped with a water recycling system.
- (4) Mobile car detailing enterprises using water shall have a City business license and carry a statement of approval by the City Manager or his/her designee as to knowledge of and compliance with the City's Water Quality Regulations, and the required Best Management Practices and techniques to prevent runoff to storm drains.
- (e) **Washing of Equipment and Machinery.** No person shall use a water hose to wash any type of equipment or machinery, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle. All wash water from such washing/cleaning activity must be prevented from discharging to the stormwater drainage system. All wash water from such washing/cleaning containing chemicals shall be discharged into the sanitary sewer system through an appropriate treatment system. Any person discharging water containing chemicals is required to first obtain a special discharge permit from the South Orange County Wastewater Authority before such water may be discharged to the sanitary sewer.
- (f) **Cleaning of Structures.** No person shall use water through a hose, including pressure-washing, to clean the exterior of any building or structure unless such hose is equipped with a shutoff nozzle. All wash water from such activity must be prevented from discharging to the stormwater drainage system, and shall comply with the City's Water Quality Regulations and Best Management Practices.

- (g) **Cleaning of Surfaces.** No person shall use water through a hose, including pressure-washing, to clean any sidewalk, driveway, roadway, parking lot, sports court, or any other outdoor paved or hard-surfaced area, unless all wash water from such activity is prevented from discharging to the stormwater drainage system. Such water-using cleaning may only occur for health and safety reasons and comply with the City's Water Quality Regulations and Best Management Practices. General maintenance cleaning shall be performed by other means such as by using a broom.
- (h) **Swimming Pools and Spas.** No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with public health regulations, or upon written recommendation of a pool maintenance professional. Discharge of pool or spa water, other than directly to the sanitary sewer system, shall be consistent with the City's Water Quality Regulations and Best Management Practices. Discharge of pool or spa filter backwash water to the stormwater drainage system is prohibited. All pools and spas shall be equipped with a water recirculation device. The use of a pool/spa cover is strongly encouraged to prevent evaporative water loss, and achieve additional energy and chemical saving benefits.
- (i) **Fountains, Decorative Basins, Ponds, Lakes, Waterways.** No person shall use water to operate or maintain water levels in decorative fountains, basins, ponds, lakes, and waterways unless a recirculation device is in use. Discharge of water, other than directly to the sanitary sewer system, shall be consistent with City's Water Quality Regulations and related Best Management Practices. Discharge of filter backwash water to the stormwater drainage system is prohibited.
- (j) **Cooling Systems.** No single pass cooling systems shall be permitted in new connections to the potable water system.
- (k) **Commercial Laundry Facilities, Laundromats and Common Area Laundry Rooms.** New commercial laundry facilities shall be equipped with a water reclamation system for reuse of rinse water. Laundromats and common area laundry rooms shall install high efficiency clothes washing machines, as older machines are replaced.
- (l) **Visitor-Serving Facilities.** The owner and manager of each hotel, motel, restaurant, and other visitor-serving facilities shall ensure that such facilities display, in places visible to all customers, placards or decals promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited. Hotels and motels shall give guests the option to reuse towels and linens.
- (m) **Public and Quasi-Public Entities.** All public and quasi-public entities shall display, in visible locations in all restrooms, kitchens, and dining areas,

placards or decals promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.

(n) Food Service Facilities.

- (1) Drinking Water.** Food service facilities, including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served and/or purchased in the City, shall not serve drinking water other than upon request.
- (2) Dishwashing and Garbage Disposals.** All commercial kitchens with dishwashing facilities shall encourage the activity of scraping food waste into a garbage can rather than using a garbage disposal. Garbage disposals are prohibited in all new food facilities. All pre-rinse spray nozzles should have been retrofitted to models using 1.6 gallons per minute or less, by July 1, 2010.
- (3) Other Water-Using Activities.** Defrosting food with running water shall be avoided and discouraged. If using a hose for wash down of kitchens, garbage areas, or any other area required by the health department, or for sanitation reasons, it shall have a positive shutoff nozzle. Scoop sinks (dipper wells) shall be set at minimum flow at all times, and during hours of operation carefully monitored to avoid using water unnecessarily when the scoop sink is not in active use.
- (4) New or Remodeled Kitchens.** All other water-using equipment in new or remodeled kitchens shall use the best available water conserving technology.

(o) Construction.

- (1)** No potable water may be used for compacting or dust control purposes in construction activities where there is a reasonably available source of recycled or other non-potable water approved by the State Water Resources Control Board and appropriate for such use. The use of recycled water on construction projects requires a permit from the State Water Resources Control Board Department of Drinking Water (DDW) in conjunction with the Orange County Health Care Agency (OCHCA). This condition must be identified and specified on construction drawings submitted to the City for review. Upon City written approval, the use of potable water for construction or grading purposes is allowed if recycled water is not reasonably available or to augment an interruptible supply of recycled water, unless the City has declared a stage of the Water Shortage Contingency Measures that prohibits the use of potable water for these activities.
- (2)** All water hoses used in connection with any construction activities shall be equipped with an automatic shutoff nozzle when an automatic shutoff nozzle can be purchased or otherwise obtained for the size or type of hose in use.

- (3) All water used on a construction site shall be prevented from entering any part of the stormwater drainage system.
- (p) Use of Hydrants. No person may use water from any fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining a City hydrant meter account or written approval from the City Manager or his/her designee. Absent a meter or written permission, current water theft and meter tampering fees will be applied as appropriate.
- (q) Water Spillage and Runoff. Every person shall minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff. Gutter flooding is specifically prohibited.
- (r) Indiscriminate Use. No person shall cause or permit the indiscriminate running of water not otherwise prohibited above which is wasteful and without reasonable purpose.
- (s) Public Health and Safety. These regulations shall not be construed to limit water use which is immediately necessary to protect public health and/or safety. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.06. Water Shortage Contingency Measures.

The City Council by resolution shall require or impose reductions in the use of water if such reductions are necessary in order for the City to comply with water use restrictions imposed by federal, state or regional water agencies, or to respond to local or regional water shortage conditions and emergencies. Depending on the expected duration and severity of the shortage, these measures may include, but are not limited to, some or all of the actions listed in the following five (5) stages of water conservation, which shall take effect upon the adoption of a resolution by the City Council declaring the specific stage. In an immediate emergency, the City Manager or his/her designee may make the declaration, which will be ratified by the adoption of a resolution by the City Council at a subsequent meeting. Each elevated stage will include the elements of the previous stage(s), and are intended to be more restrictive than the previous stage(s). Upon the adoption of the resolution declaring a drought stage, the conservation measures for the identified stage shall be in effect immediately unless otherwise determined by the City Council in such resolution. The declaration of each stage shall be communicated to the media.

The prohibited uses of water are not applicable to that use of water necessary for public health and safety or for essential governmental services such as police, fire and, other similar emergency services.

(a) Stage 1: Water Watch. The following voluntary water conservation measures are requested to be undertaken:

- (1) All City staff to be alerted to the Stage 1 conditions, supplied with educational material, and directed to actively intervene and educate the public, when excessive use is observed.
- (2) All nonessential water use shall cease, water leaks shall be repaired immediately, and a reduction in water use for landscape irrigation, swimming pools, water features (i.e. lakes, ponds, fountains, etc.), construction, vehicle and equipment washing, and washing of structures and surfaces shall be encouraged from all customer accounts.

(b) Stage 2: Water Alert. During Stage 2 the following additional water conservation measures shall apply:

- (1) No Customer shall use potable water in excess of his/her monthly drought limit. Any customer whose potable water use exceeds his/her monthly drought limit for a billing cycle shall receive a notice in his/her water bill that his/her water use for the billing cycle is a violation of the water conservation regulations then in effect. Any customer whose potable water use for three consecutive billing cycles exceeds his/her monthly drought limit during the three month cumulative period, shall pay a civil administrative penalty for each CCF of water used in excess of his/her three month cumulative monthly drought limit. The penalty shall be in addition to any applicable water service charges imposed for the potable water delivered to the customer. The amount of the penalty shall be equal to 50% of the then current tier 3 rate per CCF billing unit (one billing unit equals 748 gallons).
- (2) Outdoor irrigation of ornamental landscapes or turf with potable water will be limited to no more than two (2) days per week on an assigned schedule established by the City.
- (3) Irrigation of ornamental turf with potable water on medians is prohibited.
- (4) Washing of pavement and other surfaces shall be prohibited. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas except to alleviate immediate fire or sanitation hazards.
- (5) Cleaning of structures, using water from a hose, shall be prohibited.

- (6) The emptying and refilling of a swimming pool, spa, or other water features excluding normal maintenance of water levels due to evaporation, is prohibited.

(c) **Stage 3: Water Warning.** During Stage 3 the following additional water conservation measures shall apply:

- (1) No Customer shall use potable water in excess of his/her monthly drought limit. Any customer whose potable water use exceeds his/her monthly drought limit for a billing cycle shall receive a notice in his/her water bill that his/her water use for the billing cycle is a violation of the water conservation regulations then in effect. Any customer whose potable water use for three consecutive billing cycles exceeds his/her monthly drought limit during the three month cumulative period, shall pay a civil administrative penalty for each CCF of water used in excess of his/her three month cumulative monthly drought limit. The penalty shall be in addition to any applicable water service charges imposed for the potable water delivered to the customer. The amount of the penalty shall be equal to 100% of the then current tier 3 rate per CCF billing unit (one billing unit equals 748 gallons).
- (2) Washing of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited, other than at a car wash. Such washings are exempted from these regulations where the health, safety and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables. An exception will also be made for vehicles which are too fragile for, or would be damaged by, an automated car wash facility. These vehicles may be washed using a bucket and/or a minimum amount of water through a hose equipped with an automatic shut off nozzle. Washing of autos, vans, trucks, trailers, boats, airplanes and other types of mobile equipment is limited to once a week.
- (3) New or rehabilitated turf shall not be installed in any landscape, whether from plugs, sod, or seed. Homeowners' Associations shall not require landscaping to be installed at new homes. Homeowners' Associations may require a layer of weed barrier material and three (3) inches of mulch in lieu of landscaping until plants can be installed.
- (4) The use of potable City water for construction or grading purposes is prohibited. Construction water shall not be used for earth work or road construction purposes, unless recycled water is available and has been approved for such use. Recycled water supply is to be considered interruptible and may not be supplemented with potable water. An exception to these restrictions may be granted for projects nearing completion, and having a public benefit deemed essential to the community by the City Manager or his/her designee. Requests for such

exceptions must be made in writing to the City Manager or his/her designee, and will be considered with reference to the nature of each individual project and to all phases of such projects.

(d) Stage 4: Water Crisis. During Stage 4 the following additional water conservation measures shall apply:

- (1) No Customer shall use potable water in excess of his/her monthly drought limit. Any customer whose potable water use exceeds his/her monthly drought limit for a billing cycle shall receive a notice in his/her water bill that his/her water use for the billing cycle is a violation of the water conservation regulations then in effect. Any customer whose potable water use for three consecutive billing cycles exceeds his/her monthly drought limit during the three month cumulative period, shall pay a civil administrative penalty for each CCF of water used in excess of his/her three month cumulative monthly drought limit. The penalty shall be in addition to any applicable water service charges imposed for the potable water delivered to the customer. The amount of the penalty shall be equal to 200% of the then current tier 3 rate per CCF billing unit (one billing unit equals 748 gallons).
- (2) All lawn watering with potable water is prohibited. All other landscape water shall be reduced to one (1) day per week and the object of any irrigation water applied shall be solely to save trees.
- (3) The operation of any ornamental fountain or similar structure is prohibited, unless it contains aquatic life such as koi. Such water features which require recirculating water to maintain aquatic life must be operated in such a way as to prevent all splashing or blowing of water outside the containment structure. Bird baths containing fewer than five (5) gallons of water are exempted.
- (4) Washing of autos, trucks, trailers, boats, airplanes and other types of mobile equipment is prohibited. Such washings are exempted from these regulations where the health, safety and welfare of the public is contingent upon frequent vehicle cleaning such as garbage trucks and vehicles used to transport food and perishables.
- (5) Subject to the declaration of a water shortage emergency, no new building permits or will-serve letters will be issued.
- (6) New construction permits for pools and spas will not be issued. Pools and spas under construction at the time Stage 4 is declared may be completed and filled.
- (7) The use of potable City water for construction or grading purposes is prohibited even for such exceptions made under Stage 3.

- (8) The use of a temporary fire hydrant meter from the City, or otherwise using potable water through a temporary City water service including jumpers is prohibited. The use of potable water from fire hydrants shall be limited to fire fighting and related activities, or other activities necessary to maintain the health, safety and welfare of the public.
- (9) New meters or water services will not be issued, except meters installed to replace an existing jumper.

(e) **Stage 5: Water Emergency.** During Stage 5 the following additional water conservation measures shall apply:

- (1) No Customer shall use potable water in excess of his/her monthly drought limit. Any customer whose potable water use exceeds his/her monthly drought limit for a billing cycle shall receive a notice in his/her water bill that his/her water use for the billing cycle is a violation of the water conservation regulations then in effect. Any customer whose potable water use for three consecutive billing cycles exceeds his/her monthly drought limit during the three month cumulative period, shall pay a civil administrative penalty for each CFF of water used in excess of his/her three month cumulative monthly drought limit. The penalty shall be in addition to any applicable water service charges imposed for the potable water delivered to the customer. The amount of the penalty shall be equal to 400% of the then current tier 3 rate per billing unit (one billing unit equals 748 gallons).
- (2) All outdoor irrigation is prohibited.
- (3) Swimming pools, spas, ponds, lakes, and other water features shall be prohibited from filling for any reason including evaporation.
- (4) Use of potable water for agricultural or commercial nursery purposes, except for livestock water, is prohibited.
- (5) No potable water shall be used for air conditioning purposes. An exception may be granted for cooling towers at sites such as schools, office buildings, and food facilities, if the equipment is being maintained at a demonstrable level of water use efficiency. City staff is authorized to inspect such facilities and may require a written statement confirming the cycles of concentration maintained.

- (6) The use of potable water for commercial, manufacturing or processing purposes shall be reduced in volume by fifty (50) percent. (Ord. No. 941, § 4, 9-2-2008; Ord. No. 1017, § 3, 8-19-2014)

Sec. 6-12.07. Enforcement and Administration

The City Manager and all officers and employees of the City, including all ex officio officers and employees, shall enforce all the provisions of this chapter. The City Manager or his/her designee shall implement and administer this chapter. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.08. Violations, Notices, and Remedies.

(a) **Notice of Noncompliance for Excessive Water Use.** For Stages 2 through 5 of the Water Shortage Contingency Measures, water use in excess of each customer's monthly drought limit is prohibited and is a violation. Notice of the violation and the associated penalties as defined in this chapter will appear on the customer's monthly water bill. The notice shall include the following:

- (1) State a general description of the violation; and
- (2) Include appeal and hearing rights and procedures.

(b) **Compliance Remedies for Excessive Water Use.** The City may terminate water service to any customer, or place a flow restricting device on the meter of any customer whose water use exceeds his/her monthly drought limit for five (5) consecutive months during Stages 2 through 5. The City may also pass on any penalties, surcharges or increased charges incurred by the City as a result of the customer's violation.

(c) **Notice of Noncompliance for all Other Violations.** For all other violations other than excessive water use, if any person fails or refuses to comply with this chapter, the City Manager or his/her designee shall provide written notice of the violation and an opportunity to correct the noncompliance. Each and every day that the violation occurs or continues shall be considered a new and separate offense. A copy of the written notice shall be mailed to the address of the violation, to the party who is billed for the water, or to the owner of the property, as appropriate. The written notice shall include the following:

- (1) Be posted or presented at the site of the noncompliance;
- (2) State the time, date, and place of violation;
- (3) State a general description of the violation;
- (4) State the means to correct the violation;

- (5) State a date by which correction is required; the period for compliance will be shortened depending on any applicable water conservation contingency stage;
 - (6) State the possible consequences of failing to correct the violation; and
 - (7) Include appeal and hearing rights and procedures.
- (d) **Compliance Remedies.** Except for excessive water use violations, if a person fails to correct the violation within the time specified in the written notice, the City Manager or his/her designee may take one or more of the following actions:
- (1) Pass on any penalties, surcharges or increased charges incurred by the City as a result of the person's violation.
 - (2) For residential accounts, impose a civil administrative penalty of not more than one hundred dollars (\$100.00) for a first violation, two hundred dollars (\$200.00) for a second violation, and five hundred dollars (\$500.00) for each additional violation occurring within the calendar year.
 - (3) For commercial, industrial, construction, and irrigation accounts impose a penalty of not more than two hundred dollars (\$200.00) for a first violation, four hundred dollars (\$400.00) for a second violation, and one thousand dollars (\$1,000.00) for each additional violation occurring within the calendar year.
 - (4) Terminate water service to the site of the violation, or place a flow restricting device on the meter.
 - (5) Abate the violation as a nuisance in accordance with Section 6-12.09 of this chapter.
- (e) **Regulatory Fine Recovery.** In the event that a person causes a regulatory agency to levy a fine against the City resulting from the person's violations of the provisions of this chapter, such person shall be required to reimburse the City for the fine and associated administrative costs.
- (f) **Administrative Hearing for Notices of Noncompliance, Invoices for Costs and Adverse Determinations.** Any person receiving a notice of noncompliance, an invoice for costs, or any person who is subject to any adverse determination made pursuant to this chapter, may appeal the matter by requesting an administrative hearing.
- (g) **Request for Administrative Hearing.** Any person appealing a notice of noncompliance, an invoice for costs or an adverse determination shall, within fifteen (15) days of receipt thereof, file a written request for an administrative hearing,

accompanied by an administrative hearing fee as established by separate resolution, with the Office of the City Clerk. Thereafter, a hearing on the matter shall be held before a Hearing Officer appointed by the City Manager or his/her designee within forty-five (45) business days of the date of filing of the written request unless, in the reasonable discretion of the Hearing Officer and pursuant to a written request by the appealing party, a continuance of the hearing is granted.

- (h) **Hearing Proceedings.** The City officer and/or employee issuing the notice of noncompliance, invoice for costs or adverse determination shall appear in support of the notice, invoice for costs, or determination, and the appealing party shall appear in support of dismissal of the notice, determination, and invoice for costs. Each party shall have the right to present testimony, present their own witnesses and other documentary evidence as necessary for explanation of their case. The hearing need not be conducted according to technical rules relating to evidence and witnesses. Any relevant evidence shall be admitted if it is the sort of evidence on which responsible persons are accustomed to rely in the conduct of serious affairs, regardless of the existence of any common law or statutory rule which might make improper admission of such evidence over an objection in civil actions. Hearsay evidence may be used for the purpose of supplementing or explaining any direct evidence but shall not be sufficient in itself to support a finding by the Hearing Officer, unless it would be admissible over an objection in civil actions. The rules of privilege shall be effective to the same extent they are now or hereafter may be recognized in civil actions, and irrelevant and unduly repetitious evidence shall be excluded. The appealing party shall notify the City forty-eight (48) hours in advance of the hearing, if legal counsel will be present on their behalf. The provisions of Chapter 6 of Title 1 of this Code shall not apply.
- (i) **Final Decision and Appeal.** The final decision of the Hearing Officer shall be issued within thirty (30) days of the conclusion of the hearing and shall be delivered by first-class mail, postage prepaid, to the parties. The decision shall include notice that it is final and any legal challenge to the final decision shall be made pursuant to the provisions of Code of Civil Procedure Sections 1094.5 and 1094.6 and shall be commenced within ninety (90) days following its issuance. The administrative hearing fee paid by a prevailing party in an appeal shall be refunded. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.09. Nuisances, Abatement, and Injunctive Relief.

- (a) Any condition in violation of the prohibitions of this chapter shall constitute a threat to the public health, safety and welfare, and is declared and deemed a nuisance pursuant to Government Code Section 38771.
- (1) **Court Order to Enjoin or Abatement.** At the request of the City Manager or his/her designee, the enforcing attorney may seek a court order to enjoin and/or abate the nuisance.

- (2) **Notice to Owner and Occupant.** Prior to seeking any court order to enjoin or abate a nuisance or threatened nuisance, the City Manager, or his/her designee, shall provide notice of the proposed injunction or abatement to the owner and occupant, if any, of the property where the nuisance or threatened nuisance is occurring.
- (3) **Reimbursement of Costs.** All costs incurred by the City in responding to any nuisance, all administrative expenses and all other expenses recoverable under state law, including reasonable consulting fees and attorney's fees, shall be recoverable from the person(s) creating, causing, committing, permitting or maintaining the nuisance.
- (4) **Nuisance Lien.** All costs shall become a lien against the property from which the nuisance emanated and a personal obligation against the owner thereof in accordance with Government Code Sections 38773.1 and 38773.5. The owner of record of the property subject to any lien shall be given notice of the lien prior to recording as required by Government Code Section 38773.1.
- (5) At the direction of the City Manager, or his/her designee, the enforcing attorney is authorized to collect nuisance abatement costs or enforce a nuisance lien in an action brought for a money judgment or by delivery to the County Assessor of a special assessment against the property in accord with the conditions and requirements of Government Code Section 38773.5. (Ord. No. 941, § 4, 9-2-2008)

Sec. 6-12.10. Relief from Compliance.

The City Manager or his/her designee may, in writing, grant variances to persons who apply on forms supplied by the City for:

- (a) Usages of water prohibited by Section 6-12.05 or Section 6-12.06, if it is found that a variance is necessary to prevent an emergency condition relating to health and safety, or to prevent a severe hardship on a customer not caused by the customer's own actions or omissions. Additionally, on a case by case basis, customers may present circumstances that would reasonably preclude them from compliance and present an alternative to satisfy the conservation requirement. Further, the person seeking a variance must have demonstrated that he or she has implemented water conservation measures in some other manner that achieves the objectives of this chapter. No variance may be granted for the filling of any decorative fountain, basin, pond, hot tub, spa or permanent swimming or wading pool, unless the filling occurs as the result of performing necessary leak repairs and unless the other provisions of this section are met.
- (b) No variance shall be granted to any customer unless the customer has demonstrated that he or she has already achieved the maximum practical reduction in water consumption as can be achieved by the affected property or business. Any variance granted shall be based upon the water consumption rates of similar water

users, properties or businesses. (Ord. No. 941, § 4, 9-2-2008; Ord. No. 1017, § 3, 8-19-2014)

Sec. 6-12.11. Additional Water Conservation Measures.

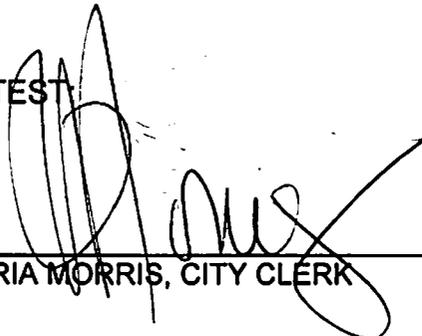
- (a) In addition to the water conservation requirements established by this chapter, the City Manager or his/her designee is authorized to develop and promulgate additional water conservation plans and measures which shall be directed to achieve target goals for reductions in water consumption as determined by the City Council by resolution from time to time.
- (b) The City may, to the extent authorized by law, elect to contract for the services of any public agency or private enterprise to carry out the building services approvals, inspections, and enforcement authorized by this chapter. (Ord. No. 941, § 4, 9-2-2008)

PASSED, APPROVED, AND ADOPTED this 2nd day of June 2015.



DEREK REEVE, MAYOR

ATTEST

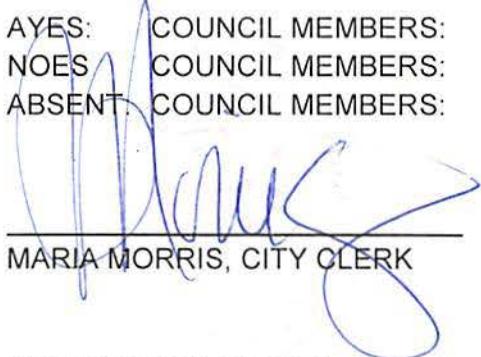


MARIA MORRIS, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF ORANGE)SS
CITY OF SAN JUAN CAPISTRANO)

I, MARIA MORRIS, appointed City Clerk of the City of San Juan Capistrano, do hereby certify that the foregoing is a true and correct copy of **Urgency Ordinance No. 1024** that was adopted and passed at the Regular Meeting of the City Council on the 2nd day of June 2015, by the following vote, to wit:

AYES: COUNCIL MEMBERS: Allevato, Perry, Ferguson, and Mayor pro tem Patterson
NOES: COUNCIL MEMBERS: Mayor Reeve
ABSENT: COUNCIL MEMBERS: None



MARIA MORRIS, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss AFFIDAVIT OF POSTING
CITY OF SAN JUAN CAPISTRANO)

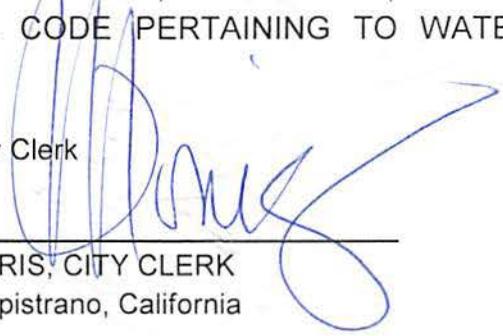
I, MARIA MORRIS, declare as follows:

That I am the duly appointed and qualified City Clerk of the City of San Juan Capistrano; that in compliance with State laws, Government Code section 36933(1) of the State of California.

On the 8th day of June 2015, I caused to be posted a certified copy of **Urgency Ordinance No. 1024**, adopted by the City Council on June 2, 2015, entitled:

AN URGENCY ORDINANCE OF THE CITY COUNCIL OF SAN JUAN CAPISTRANO, CALIFORNIA, AMENDING TITLE 6, CHAPTER 12, OF THE SAN JUAN CAPISTRANO MUNICIPAL CODE PERTAINING TO WATER CONSERVATION

This document was posted in the Office of the City Clerk



MARIA MORRIS, CITY CLERK
San Juan Capistrano, California

APPENDIX E

Notification of Public and Service Area Suppliers





NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Planning Department
City of San Clemente
910 Calle Negocio
San Clemente, CA 92673

The City of San Juan Capistrano is in the process of preparing its 2015 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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

This letter is intended to notify your agency that the City of San Juan Capistrano is in the process of preparing the 2015 UWMP. Based on the City of San Juan Capistrano's current schedule, a draft will be available for review prior to the public hearing, which is tentatively scheduled for July 19, 2016.

If your agency would like more information or have any questions, please direct any inquiries to:

City of San Juan Capistrano
Eric Bauman, Assistant Director
Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Planning Department
City of Mission Viejo
200 Civic Center
Mission Viejo, CA 92691

The City of San Juan Capistrano is in the process of preparing its 2015 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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If your agency would like more information or have any questions, please direct any inquiries to:

City of San Juan Capistrano
Eric Bauman, Assistant Director
Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Planning Department
City of Laguna Niguel
30111 Crown Valley Parkway
Laguna Niguel, CA 92677

The City of San Juan Capistrano is in the process of preparing its 2015 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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

This letter is intended to notify your agency that the City of San Juan Capistrano is in the process of preparing the 2015 UWMP. Based on the City of San Juan Capistrano's current schedule, a draft will be available for review prior to the public hearing, which is tentatively scheduled for July 19, 2016.

If your agency would like more information or have any questions, please direct any inquiries to:

City of San Juan Capistrano
Eric Bauman, Assistant Director
Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Planning Department
City of Dana Point
33282 Golden Lantern
Dana Point, CA 92629

The City of San Juan Capistrano is in the process of preparing its 2015 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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

This letter is intended to notify your agency that the City of San Juan Capistrano is in the process of preparing the 2015 UWMP. Based on the City of San Juan Capistrano's current schedule, a draft will be available for review prior to the public hearing, which is tentatively scheduled for July 19, 2016.

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Eric Bauman, Assistant Director
Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

The City of San Juan Capistrano is in the process of preparing its 2015 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to prepare an UWMP every five years.

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

This letter is intended to notify your agency that the City of San Juan Capistrano is in the process of preparing the 2015 UWMP. Based on the City of San Juan Capistrano's current schedule, a draft will be available for review prior to the public hearing, which is tentatively scheduled for July 19, 2016.

If your agency would like more information or have any questions, please direct any inquiries to:

City of San Juan Capistrano
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NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Moulton Niguel Water District
27500 La Paz Road
Laguna Niguel, CA 92677

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Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

South Coast Water District
31592 West Street
Laguna Beach, CA 92651

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Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Hugh Nguyen
County of Orange
Clerk-Recorder
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

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Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675



NOTICE OF PREPARATION OF THE CITY OF SAN JUAN CAPISTRANO 2015 URBAN WATER MANAGEMENT PLAN

May 12, 2016

Attn: Shane Silisby, Director of Public Works
County of Orange
333 West Santa Ana Blvd.
Santa Ana, CA 92701

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City of San Juan Capistrano
Eric Bauman, Assistant Director
Utilities Department
32400 Paseo Adelanto
San Juan Capistrano, CA 92675

APPENDIX F

Adopted UWMP Resolution



RESOLUTION NO. 16-07-19-01

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JUAN
CAPISTRANO, CALIFORNIA, ADOPTING THE 2015 URBAN WATER
MANAGEMENT PLAN UPDATE EFFECTIVE JULY 19, 2016

WHEREAS, the California Urban Water Management planning Act, Water Code Section 10610 et seq. (the Act) mandates that 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 prepare and adopt an updated urban water management plan (Plan) at least once every five years;

WHEREAS, the City of San Juan Capistrano previously prepared and adopted an Urban Water Management Plan in January 1991, March 1996, March 2001, January 2004, November 2006, and July 2011; and

WHEREAS, the Plan, entitled "2015 Urban Water Management Plan" has been prepared and made available for public inspection, and notice of a public hearing thereon has been given pursuant to Sections 10608.26 and 10642 of the California Government Code; and

WHEREAS, the City Council, pursuant to Section 10621 of the Water Code, has reviewed the Plan; and

WHEREAS, in accordance with Section 10620(d)(2) of the Act, preparation of the Draft Plan was coordinated with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, land use planning agencies and other relevant public agencies, to the extent practicable; and

WHEREAS, at the time set, the duly noticed public hearing was held and all persons interested were given an opportunity to be heard concerning any matter set forth in the Plan.

NOW, THEREFORE, BE IT RESOLVED that the City of San Juan Capistrano City Council, does hereby resolve as follows:

Section One.

The use of Option 1 under Water Code section 10608.20(b) for determining the City's urban water use targets is confirmed and the 2015 Urban Water Management Plan for the City of San Juan Capistrano, dated July 2016, on file in the City Clerk's office and incorporated herein by this reference, including any errata, revisions and modifications made at the public hearing, is hereby adopted pursuant to Section 10642 of the California Water Code.

Section Two.

The City Clerk is authorized and directed to include a copy of this Resolution in the 2015 Urban Water Management Plan and file a copy of the 2015 Urban Water Management Plan of the City of San Juan Capistrano pursuant to Sections 10621 and 10644 of the California Water Code.

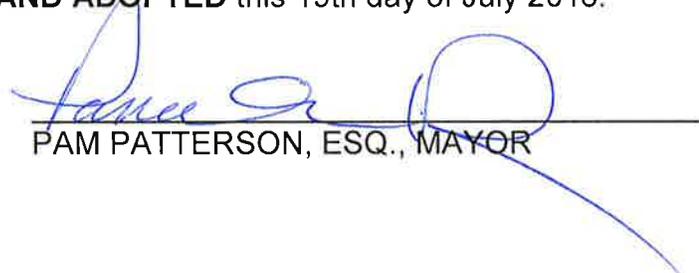
Section Three.

The City Clerk is hereby authorized and directed to make the 2015 Urban Water Management Plan available for public review during normal business hours at the City's offices in accordance with Section 10645 of the Water Code.

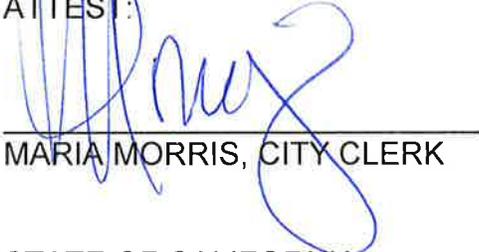
Section Four.

The City Manager is hereby authorized and directed to recommend to the City Council additional steps necessary or appropriate to update the 2015 Urban Water Management Plan and effectively carry out the implementation of the 2015 Urban Water Management Plan in accordance with the Act and Water Code section 10608 et seq.

PASSED, APPROVED, AND ADOPTED this 19th day of July 2016.


PAM PATTERSON, ESQ., MAYOR

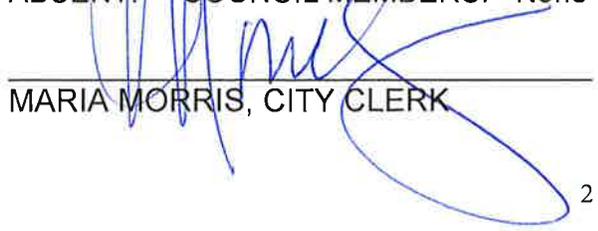
ATTEST:


MARIA MORRIS, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss.
CITY OF SAN JUAN CAPISTRANO)

I, MARIA MORRIS, appointed City Clerk of the City of San Juan Capistrano, do hereby certify that the foregoing Resolution No. 16-07-19-01 was duly adopted by the City Council of the City of San Juan Capistrano at the Regular meeting thereof, held the 19th day of July 2016, by the following vote:

AYES: COUNCIL MEMBERS: Reeve, Perry, Allevato, Ferguson and Mayor Patterson
NOES: COUNCIL MEMBERS: None
ABSENT: COUNCIL MEMBERS: None


MARIA MORRIS, CITY CLERK

APPENDIX G

BUMP Methodology





Final Technical Memorandum #1

*To: Karl Seckel, Assistant Manager/District Engineer
Municipal Water District of Orange County*

From: Dan Rodrigo, Senior Vice President, CDM Smith

Date: April 20, 2016

Subject: Orange County Reliability Study, Water Demand Forecast and Supply Gap Analysis

1.0 Introduction

In December 2014, the Municipal Water District of Orange County (MWDOC) initiated the Orange County Reliability Study (OC Study) to comprehensively evaluate current and future water supply and system reliability for all of Orange County. To estimate the range of potential water supply gap (difference between forecasted water demands and all available water supplies), CDM Smith developed an OC Water Supply Simulation Model (OC Model) using the commercially available Water Evaluation and Planning (WEAP) software. WEAP is a simulation model maintained by the Stockholm Environment Institute (<http://www.sei-us.org/weap>) that is used by water agencies around the globe for water supply planning, including the California Department of Water Resources.

The OC Model uses indexed-sequential simulation to compare water demands and supplies now and into the future. For all components of the simulation (e.g., water demands, regional and local supplies) the OC Model maintains a given index (e.g., the year 1990 is the same for regional water demands, as well as supply from Northern California and Colorado River) and the sequence of historical hydrology. The planning horizon of the model is from 2015 to 2040 (25 years). Using the historical hydrology from 1922 to 2014, 93 separate 25-year sequences are used to generate data on reliability and ending period storage/overdraft. For example, sequence one of the simulation maps historical hydrologic year 1922 to forecast year 2015, then 1923 maps to 2016 ... and 1947 maps to 2040. Sequence two shifts this one year, so 1923 maps to 2015 ... and 1948 maps to 2040.

The OC Model estimates overall supply reliability for MET using a similar approach that MET has utilized in its 2015 Draft Integrated Resources Plan (MET IRP). The model then allocates available imported water to Orange County for direct and replenishment needs. Within Orange County, the OC Model simulates water demands and local supplies for three areas: (1) Brea/La Habra; (2) Orange County Basin; (3) South County; plus a Total OC summary (see Figure 1).



Figure 1. Geographic Areas for OC Study

The OC Model also simulates operations of the Orange County Groundwater Basin (OC Basin) managed by the Orange County Water District (OCWD). Figure 2 presents the overall model schematic for the OC Model, while Figure 3 presents the inflows and pumping variables included in the OC Basin component of the OC Model. A detailed description of the OC Model, its inputs, and all technical calculations is documented in Technical Memorandum #2: Development of OC Supply Simulation Model.

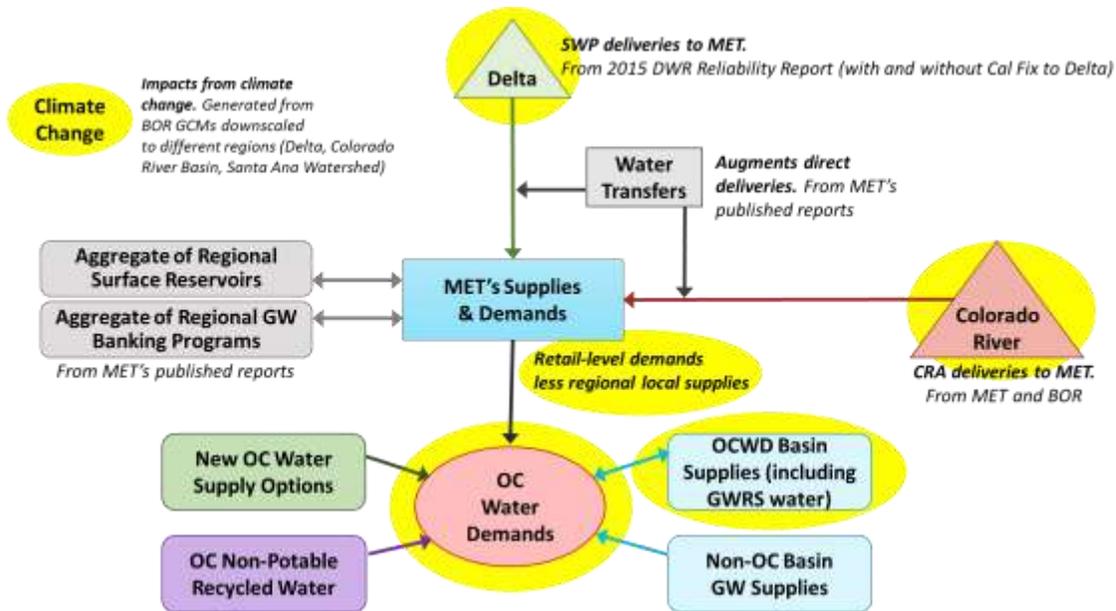


Figure 2. Overall Schematic for OC Model

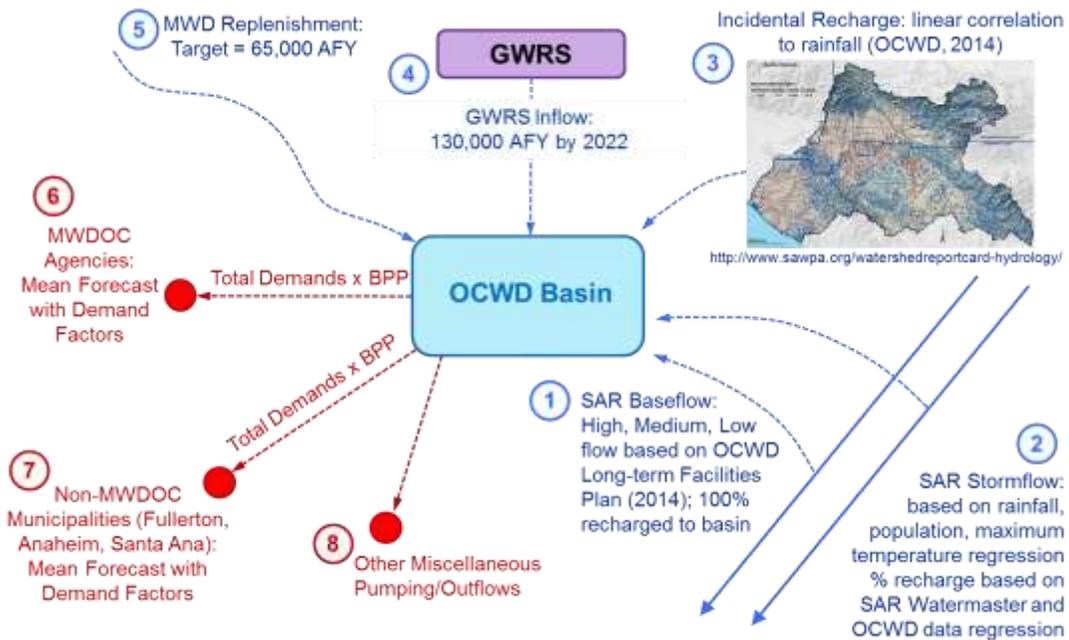


Figure 3. Inflows and Pumping Variables for OC Basin Component of OC Model

The modeling part of this evaluation is a necessity to deal with the number of issues impacting water supply reliability to Orange County. Reliability improvements in Orange County can occur due to water supply investments made by MET, the MET member agencies outside of Orange County, or by Orange County agencies. In this sense, future decision-making regarding reliability of supplies should not take place in a vacuum, but should consider the implications of decisions being made at all levels.

This technical memorandum summarizes the water demand forecast for Orange County and the water supply gap analysis that was generated using the OC Model. The outline for this technical memorandum is as follows:

- Section 1: Water Demand Forecast for Orange County
- Section 2: Planning Scenarios
- Section 3: Water Supply Gap
- Section 4: Conclusions
- Section 5: References

2.0 Water Demand Forecast for Orange County

The methodology for the water demand forecast uses a modified water unit use approach. In this approach, water unit use factors are derived from a baseline condition using a sample of water agency billing data and demographic data. In early 2015, a survey was sent by MWDOC to all water agencies in Orange County requesting Fiscal Year (FY) 2013-14 water use by billing category (e.g., single-family residential, multifamily residential, and non-residential). In parallel, the Center for Demographic Research (CDR) in Orange County provided current and projected demographics for each water agency in Orange County using GIS shape files of agency service areas. Water agencies were then placed into their respective areas (Brea/La Habra, OC Basin, South County), and water use by billing category were summed and divided by the relevant demographic (e.g., single-family water use ÷ single-family households) in order to get a water unit use factor (expressed as gallons per day/demographic unit).

In addition, the water agency survey collected information on total water production. Where provided, the difference between total water production and billed water use is considered non-revenue water. Table 1 summarizes the results of the water agency survey information and calculates the water unit use factors for the three areas within Orange County.

Table 1. Water Use Factors from Survey of Water Agencies in Orange County (FY 2013-14)

	SF Res		MF Res		Com/Instit.		Indust.		Non Revenue	
	Units ¹	Unit Use ²	Units	Unit Use	Units	Unit Use	Units	Unit Use	total acc	%
Basin Area										
ANAHEIM	50,030	441	58,618	193	169,902	90	19,260	160	63,004	7%
BUENA PARK	16,455	346	8,600	224	31,566	137	4,837	39	19,004	11%
FOUNTAIN VALLEY	12,713	336	6,964	141	30,282	124	2,093	134	17,149	13%
FULLERTON	26,274	454	22,575	176	60,839	115	6,251	398	31,557	5%
GARDEN GROVE	31,400	422	17,580	295	48,394	134	7,221	163		
GSWC	38,038	383	17,218	215	58,901	122	6,857	68	No data	
HUNTINGTON BEACH	44,605	297	35,964	154	69,266	99	10,355	58	52,855	6%
IRVINE RANCH WATER DISTRICT	39,182	444	80,854	196	263,393	80	39,484	207	85,508	9%
MESA WATER DISTRICT	16,585	320	23,173	215	80,999	97	4,832	87	No data	
NEWPORT BEACH	19,455	329	15,517	177	59,754	86			26,517	5%
ORANGE	28,545	470	15,483	246	96,606	97	No data		35,363	9%
SANTA ANA	35,547	461	42,027	288	151,008	96			No data	
TUSTIN	11,788	505	9,435	253	25,265	79	1,293	92	14,178	3%
WESTMINSTER	17,648	318	10,973	215	24,148	109	976	84	20,379	5%
YORBA LINDA WATER DISTRICT	22,046	586	3,746	249	22,164	120	2,745	230	No data	
Weighted Average		411		211		97		167		7.3%
South County										
IRVINE RANCH WATER DISTRICT	16,581	444	12,864	196	32,554	80			22,730	9%
MOULTON NIGUEL WATER DISTRICT	47,673	345	17,077	189	70,067	156	Included in		55,149	10%
SAN CLEMENTE	12,047	361	9,045	186	22,921	119	commerical/		No data	
SAN JUAN CAPISTRANO	7,176	502	6,146	206	16,483	158	institutional		11,277	3%
SANTA MARGARITA WATER DISTRICT	36,022	436	19,885	268	37,241	254	category		54,129	2%
Weighted Average		397		216		158				65%
Brea/La Habra										
BREA	9,094	425	6,898	160	42,654	93	5,931	140	No data	
LA HABRA	11,995	436	8,051	177	17,331	90	680	135	13,674	6%
Weighted Average		431.06		169.31		92.13		139.49		6%

¹Units represent:
 SF Res = SF accounts or SF housing (CDR) if SF account data looks questionable.
 MF Res = total housing (CDR) minus SF units.
 Com/Instit = total employment (CDR) minus industrial employment (CDR).
 Industrial = industrial employment (CDR).

²Unit Use represents billed water consumption (gallons/day) divided by units.

To understand the historical variation in water use and to isolate the impacts that weather and future climate has on water demand, a statistical model of monthly water production was developed. The explanatory variables used for this statistical model included population, temperature, precipitation, unemployment rate, presence of mandatory drought restrictions on water use, and a cumulative measure of passive and active conservation. Figure 4 presents the results of the statistical model for the three areas and the total county. All models had relatively high correlations and good significance in explanatory variables. Figure 5 shows how well the statistical model performs using the OC Basin model as an example. In this figure, the solid blue line represents actual per capita water use for the Basin area, while the dashed black line represents what the statistical model predicts per capita water use to be based on the explanatory variables.

Using the statistical model, each explanatory variable (e.g., weather) can be isolated to determine the impact it has on water use. Figure 6 presents the impacts on water use that key explanatory variables have in Orange County.

Regression Parameters	Basin Area	South Orange County	Brea / La Habra	OC Total
Adjusted R ² *	0.90	0.91	0.89	0.91
Standard Error **	0.07	0.09	0.09	0.07
Explanatory Variable Significance***	All at <0.0001	All at <0.0001	All at <0.0001	All at <0.0001

* Adjusted R² greater than 0.70 considered good overall correlation.
 ** Standard Errors less than 0.10 considered good overall predictive models.
 *** Explanatory Variables are considered statistically significant (valid) at the 0.05 level or less.

Figure 4. Results of Statistical Regression of Monthly Water Production

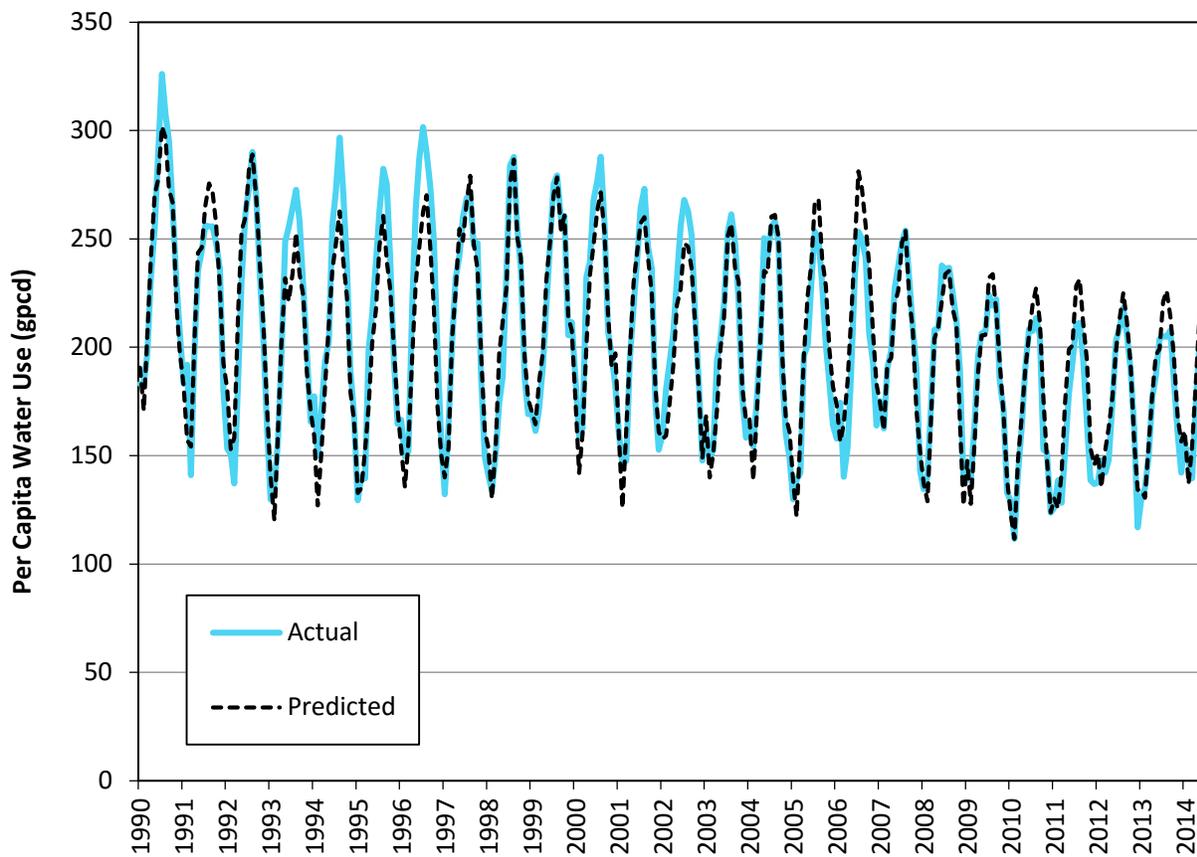


Figure 5. Verification of Statistical Water Use Model

Impacts (% impact on per capita use)	Basin Area	South Orange County	Brea / La Habra	OC Total
Hot/Dry Weather*	+6%	+9%	+6%	+6%
Cool/Wet Weather**	-4%	-7%	-5%	-5%
Economic Recession***	-13%	-12%	-13%	-13%
Drought Conservation	-6%	-5%	-5%	-6%
Passive/Active Cons. (Since 1990)	-20%	-17%	-7%	-19%

*FY 2013-14 for Hot/Dry Weather, relative to average (1990-2014).

**FY 1997-98 for Cool/Wet Weather, relative to average (1990-2014).

*** Comparing unemployment for FY 2009-10 to average (1990-2014).

Figure 6. Impacts of Key Variables on Water Use

2.1 Base Demand Forecast (No Additional Conservation post 2014)

For the purposes of this analysis three types of water conservation were defined. The first type is passive conservation, which results from codes and ordinances, such plumbing codes or model landscape water efficient ordinances. This type of conservation requires no financial incentives and grows over time based on new housing stock and remodeling of existing homes. The second type is active conservation, which requires incentives for participation. The SoCal WaterSmart grant that is administered by MET, through its member agencies, provides financial incentives for approved active water conservation programs such as high efficiency toilets and clothes washer retrofits. The third type is extraordinary conservation that results from mandatory restrictions on water use during extreme droughts. This type of conservation is mainly behavioral, in that water customers change how and when they use water in response to the mandatory restrictions. In droughts past, this type of extraordinary conservation has completely dissipated once water use restrictions were lifted—in other words curtailed water demands fully “bounced back” (returned) to pre-curtailed use levels (higher demand levels, within a relatively short period of time (1-2 years)).

The great California Drought, which started around 2010, has been one of the worst droughts on record. It has been unique in that for the last two years most of the state has been classified as extreme drought conditions. In response to this epic drought, Governor Jerry Brown instituted the first-ever statewide call for mandatory water use restrictions in April 2015, with a target reduction of 25 percent. Water customers across the state responded to this mandate, with most water agencies seeing water demands reduced by 15 to 30 percent during the summer of 2015. Water agencies in Southern California also ramped up incentives for turf removal during this time. Because of the unprecedented nature of the drought, the statewide call for mandatory water use restrictions, and the success of turf removal incentives it was assumed that the bounce back in water use after water use restrictions are lifted would take longer and not fully recover. For this study, it was assumed (hypothesized) that unit use rates would take 5 years to get to 85 percent

and 10 years to get to 90 percent of pre-drought water use levels. After 10 years, it was assumed that water unit use rates would remain at 90 percent of pre-drought use levels throughout the planning period—reflecting a long-term shift in water demands. Table 2 presents the assumed bounce back in water unit use rates (derived from Table 1) for this drought.

Table 2. Bounce Back in Water Unit Use from Great California Drought

Water Billing Sector	Time Period	Brea/La Habra Unit Use (gal/day)	OC Basin Unit Use (gal/day)	South County Unit Use (gal/day)
Single-Family Residential	2015	431	411	397
	2020	366	349	337
	2025 to 2040	388	369	357
Multifamily Residential	2015	169	211	216
	2020	144	179	183
	2025 to 2040	152	190	194
Commercial <i>(or combined commercial/ industrial for South County)</i>	2015	92	97	158
	2020	78	83	134
	2025 to 2040	83	87	142
Industrial	2015	139	167	NA
	2020	119	142	NA
	2025 to 2040	126	150	NA

* Units for single-family and multifamily are households, units for commercial and industrial are employment.

Table 3 presents the demographic projections from CDR for the three areas. These projections were made right after the most severe economic recession in the United States and might be considered low given that fact. In fact, *draft* 2015 demographic forecasts do show higher numbers for 2040.

Table 3. Demographic Projections

Demographic	Time Period	Brea/La Habra	OC Basin	South County	Total Orange County
Single-Family Housing	2020	20,463	386,324	133,989	540,776
	2030	20,470	389,734	138,709	548,913
	2040	20,512	392,387	142,008	554,907
Multifamily Housing	2020	18,561	453,758	118,306	590,625
	2030	19,113	468,972	125,030	613,115
	2040	19,585	478,362	126,736	624,683
Commercial Employment <i>(or combined commercial/ industrial employment for South County)</i>	2020	63,909	1,254,415	255,050	1,573,374
	2030	64,961	1,304,353	266,553	1,635,867
	2040	65,743	1,343,509	271,808	1,681,060
Industrial Employment	2020	6,583	138,474	NA	145,057
	2030	6,552	137,763	NA	144,315
	2040	6,523	137,066	NA	143,589

To determine the water demand forecast with no additional (post 2014) water conservation, the water unit use factors in Table 2 are multiplied by the demographic projections in Table 3; then a non-revenue percentage is added to account for total water use (see Table 1 for non-revenue water percentage). These should be considered normal weather water demands. Using the statistical results shown back in Figure 4, demands during dry years would be 6 to 9 percent greater; while during wet years demands would be 4 to 7 percent lower. Table 4 summarizes the demand forecast with no additional conservation post 2014. In year 2040, the water demand with no additional conservation for the total county is forecasted to be 617,466 acre-feet per year (afy). In 2014, the actual county water demand was 609,836; in 2015, the demand was 554,339 and the projected forecast for 2016 is 463,890. This represents a total water demand growth of only 1.25 percent from 2014 to 2040. In contrast, total number of households for the county is projected to increase 4.24 percent for the same period; while county employment is projected to increase by 6.22 percent.

Table 4. Normal Weather Water Demand Forecast with No Additional Conservation Post 2014

Brea / La Habra

	Baseline Demand Forecast (no new conservation)					
	SF	MF	COM	IND	Non Rev	Total
	AFY	AFY	AFY	AFY	AFY	AFY
2015	9,404	3,140	6,190	1,033	1,186	20,953
2020	8,397	2,992	5,605	874	1,072	18,941
2025	8,894	3,262	6,033	921	1,147	20,257
2030	8,913	3,342	6,105	917	1,157	20,434
2035	8,913	3,501	6,163	913	1,169	20,659
2040	8,919	3,513	6,205	909	1,173	20,719

South County

	Baseline Demand Forecast (no new conservation)					
	SF	MF	COM	IND	Non Rev	Total
	AFY	AFY	AFY	AFY	AFY	AFY
2015	56,181	26,940	41,990		7,507	132,616
2020	50,644	24,300	38,355		6,798	120,097
2025	55,512	27,191	42,443		7,509	132,655
2030	56,832	27,562	43,280		7,660	135,335
2035	57,350	27,884	43,970		7,752	136,956
2040	57,635	28,047	44,459		7,809	137,950

OC Basin

	Baseline Demand Forecast (no new conservation)					
	SF	MF	COM	IND	Non Rev	Total
	AFY	AFY	AFY	AFY	AFY	AFY
2015	175,544	100,997	127,252	26,027	30,087	459,907
2020	150,978	91,182	116,082	22,015	26,618	406,874
2025	161,270	99,782	127,803	23,190	28,843	440,889
2030	162,368	101,780	131,640	23,073	29,320	448,181
2035	162,772	103,766	134,543	22,958	29,683	453,722
2040	162,969	105,890	137,083	22,840	30,015	458,797

Total Orange County

	Baseline Demand Forecast (no new conservation)					
	SF	MF	COM	IND	Non Rev	Total
	AFY	AFY	AFY	AFY	AFY	AFY
2015	241,129	131,076	175,431	27,059	38,780	613,476
2020	210,019	118,473	160,042	22,889	34,488	545,911
2025	225,676	130,236	176,279	24,111	37,499	593,801
2030	228,113	132,685	181,025	23,990	38,137	603,950
2035	229,034	135,151	184,676	23,871	38,604	611,338
2040	229,524	137,450	187,747	23,750	38,996	617,466

2.2 Future Passive and Baseline Active Water Conservation

2.2.1 Future Passive Water Conservation

The following future passive water conservation estimates were made:

- High efficiency toilets – affecting new homes and businesses (post 2015) and remodels
- High efficiency clothes washers – affecting new homes (post 2015)
- Model Water Efficient Landscape Ordinance – affecting new homes and businesses (post 2015)

High Efficiency Toilets

A toilet stock model was built tracking different flush rates over time. All new homes (post 2015) are assumed to have one gallon per flush toilets. This model also assumes a certain amount of turn-over of older toilets due to life of toilet and remodeling rates. This analyses was done for single-family, multifamily and non-residential sectors. The following assumptions were made:

- Number of toilet flushes is 5.5 per person per day for single-family and multifamily homes.
- Household size is calculated from CDR data on persons per home. In single-family, household size decreases over time.
- Number of toilet flushes is 2.5 per employee per day for non-residential.
- Replacement/remodeling rates are 7% per year for 5 gal/flush toilet; 6% per year for 3.5 gal/flush toilets; and 5% per year for 1.6 gal/flush toilets.

Table 5 shows this toilet stock model for the OC Basin for single-family and non-residential sectors as an example.

Table 5. Toilet Stock Model for OC Basin (example)

OC Basin Single-Family										
# Flushes	Year	Total Housing	Portion of Homes with Gal/Flush Toilets					Av Flush	Savings (GPD/H)	Savings (AFY)
			7	5	3.5	1.6	1			
17.40	2000	348,114	3,133	53,261	123,232	168,487	-	2.84		
17.40	2013	379,999	-	4,794	27,111	348,094	-	1.78		
17.40	2015	381,806	-	4,122	23,858	313,285	40,541	1.69		
17.37	2020	386,324	-	2,680	16,700	234,964	131,980	1.50	3.32	1,435
17.31	2025	389,734	-	-	11,690	176,223	201,821	1.35	5.98	2,610
17.23	2030	392,387	-	-	8,183	132,167	252,037	1.25	7.54	3,312
17.14	2035	393,363	-	-	5,728	99,125	288,509	1.19	8.64	3,806
17.05	2040	393,840	-	-	4,010	74,344	315,486	1.14	9.43	4,159

OC Basin Non-Residential										
# Flushes	Year	Empl	Portion of Emp with Gal/Flush Toilets					Av Flush	Savings (GPD/E)	Savings (AFY)
			7	5	3.5	1.6	1			
3,298,440	2015	1,319,376	-	13,194	131,938	461,782	712,463	1.50		
3,510,508	2020	1,404,203	-	8,576	92,356	346,336	956,935	1.34	0.41	641
3,633,438	2025	1,453,375	-	5,574	64,649	259,752	1,123,399	1.23	0.67	1,083
3,729,448	2030	1,491,779	-	3,623	45,255	194,814	1,248,087	1.16	0.84	1,404
3,801,693	2035	1,520,677	-	2,355	31,678	146,111	1,340,533	1.12	0.96	1,635
3,864,600	2040	1,545,840	-	1,531	22,175	109,583	1,412,551	1.08	1.04	1,808

High Efficiency Clothes Washers

It was assumed that all new clothes washers sold after 2015 would be high efficiency and roughly save 0.033 afy per washer¹. These savings would only apply to new homes (post 2015), and only for the single-family sector.

Model Water Efficient Landscape Ordinance (2015)

The new California Model Water Efficient Landscape Ordinance (MWELO) will take place in 2016. For single-family and multifamily homes it will require that 75 percent of the irrigable area be California Friendly landscaping with high efficiency irrigation systems, with an allowance that the remaining 25 percent can be turf (high water using landscape). For non-residential establishments it will require 100 percent of the irrigable area to be California Friendly landscaping with high efficiency irrigation systems (and no turf areas). There are exemptions for non-potable recycled water systems and for parks and open space. To calculate the savings from this ordinance a parcel database provided by MWDOC was analyzed. This database had the total irrigable area and turf area delineated for current parcels. For each parcel, a target water savings was set depending on the sector. For residential parcels, 25 percent of the total irrigable area was assumed to be turf and the savings from a non-compliant parcel was estimated. For each square feet of turf conversion the estimate savings is 0.00013 afy¹. Table 6 summarizes the per parcel savings for the total county using this method.

Table 6. Estimated Parcel Savings from MWELO for Total Orange County

Parcel Type	Number of Parcels	Total Irrigable Area (sq. feet)	Current Turf Area (sq. feet)	Turf Conversion (sq. feet)*	Turf Conversion (sq. ft / parcel)	Conservation Savings (afy/parcel)
Single-Family Residential	527,627	2,114,679,368	897,177,779	368,507,937	698	0.091
Multifamily Residential	555,255	155,315,983	51,697,361	12,868,365	23	0.003
Businesses (Non-Residential)	1,623,307	499,127,269	212,043,667	212,043,667	131	0.017

* Assumes 25% turf conversion for single-family and multifamily, and 100% for businesses.

The conservation savings in afy/parcel where then multiplied by new homes and businesses (post 2015), assuming a 75 percent compliance rate.

2.2.2 Future Baseline Active Water Conservation

To estimate a baseline water savings from future active water conservation measures, the actual average annual water savings for the last seven years for the SoCal WaterSmart program within Orange County were analyzed. A continuation of this program through 2040 at similar annual implementation rates was assumed to be representative of a baseline estimate for active water conservation into the future.

¹ Per MET's SoCal WaterSmart conservation estimates, table provided by MWDOC (2015).

New active conservation measures or more aggressive implementation of existing active conservation will be evaluated as part of a portfolio analysis of water demand and supply options in Phase 2 of the OC Study.

2.2.3 Total Future Water Conservation Savings

Combining future passive and active water conservation results in a total estimated water savings, which is summarized in Table 7. The total passive and active conservation for the total Orange County is shown in Figure 7.

Table 7. Future Passive and Baseline Active Water Conservation Savings

Brea/La Habra Area

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELo	HEC Pass	Toilets	Active	Total	MWELo	Toilets	Active	Total	MWELo	Toilets	Active	Total
2020	186	32	78	8	304	11	51	5	67	63	32	17	112
2025	169	33	131	15	348	13	85	10	108	79	52	34	166
2030	166	34	163	30	394	16	106	20	142	91	67	68	226
2035	156	34	186	61	437	21	127	40	188	101	77	136	314
2040	149	34	203	79	465	21	137	53	211	108	85	177	370

OC Basin

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELo	HEC Pass	Toilets	Active	Total	MWELo	Toilets	Active	Total	MWELo	Toilets	Active	Total
2020	272	148	1,435	221	2,076	61	1,217	171	1,449	759	641	556	1,956
2025	430	260	2,610	441	3,742	96	2,165	342	2,603	1,199	1,083	1,112	3,394
2030	542	347	3,312	883	5,084	118	2,738	684	3,540	1,542	1,404	2,224	5,170
2035	557	379	3,806	1,766	6,509	139	3,182	1,369	4,690	1,801	1,635	4,447	7,883
2040	544	395	4,159	2,472	7,570	162	3,537	1,916	5,615	2,026	1,808	6,226	10,059

South County

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELo	HEC Pass	Toilets	Active	Total	MWELo	Toilets	Active	Total	MWELo	Toilets	Active	Total
2020	558	251	507	116	1,432	11	335	160	506	582	119	329	1,029
2025	812	406	877	232	2,326	22	599	321	942	960	202	657	1,819
2030	972	514	1,148	463	3,097	25	761	642	1,428	1,133	257	1,314	2,704
2035	990	556	1,332	927	3,805	27	876	1,283	2,187	1,275	298	2,628	4,201
2040	967	580	1,480	1,112	4,139	29	969	1,540	2,537	1,376	327	3,154	4,857

Total County

	Single-Family Savings (AFY)					Multifamily Savings (AFY)				Non-Residential Savings (AFY)			
	MWELo	HEC Pass	Toilets	Active	Total	MWELo	Toilets	Active	Total	MWELo	Toilets	Active	Total
2020	1,017	431	2,020	344	3,812	83	1,602	337	2,022	1,404	792	901	3,097
2025	1,411	698	3,618	688	6,416	132	2,848	673	3,653	2,238	1,337	1,803	5,378
2030	1,680	895	4,624	1,377	8,575	159	3,606	1,346	5,111	2,766	1,728	3,606	8,100
2035	1,704	969	5,325	2,754	10,752	188	4,185	2,692	7,065	3,177	2,010	7,212	12,399
2040	1,660	1,009	5,842	3,663	12,175	212	4,643	3,509	8,363	3,510	2,219	9,557	15,286

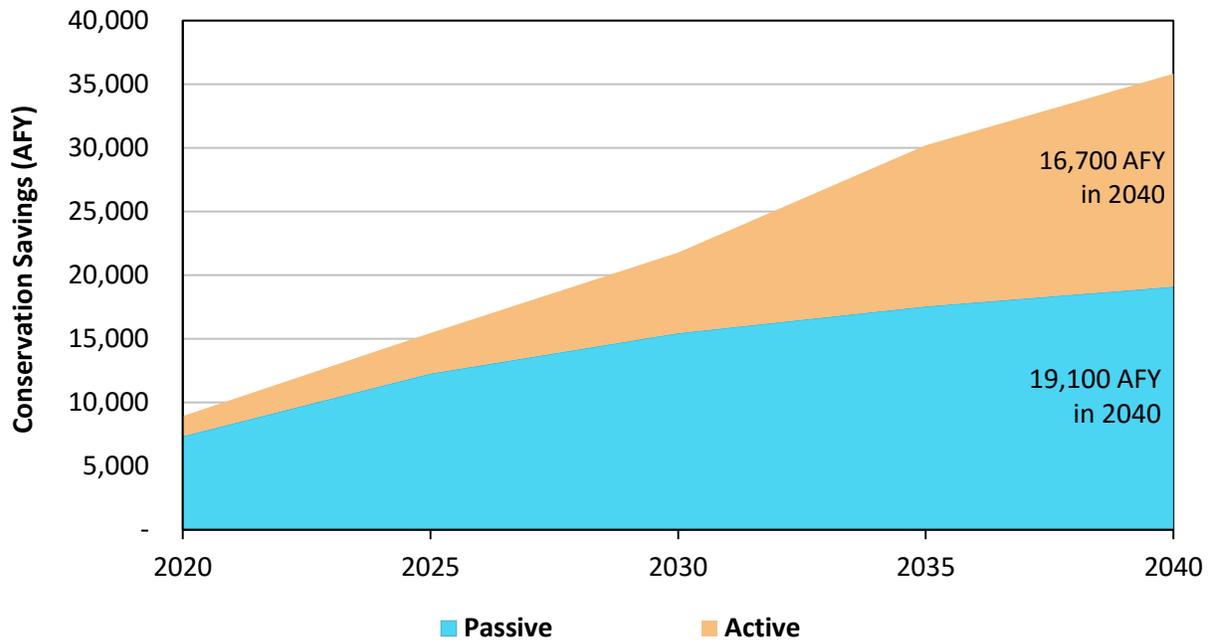


Figure 7. Total Water Conservation in Orange County

1.3 With Conservation Demand Forecast

Subtracting the future water conservation savings shown in Table 7 from the base water demand forecast shown in Table 4 results in the water demand forecast with conservation that is used to model potential water supply gaps for the OC Study. Table 8 presents the demand forecast by area and total Orange County, while Figure 8 presents the historical and forecasted water demands for total Orange County.

Note: Price elasticity of water demand reflects the impact that changes in retail cost of water has on water use. Theory states that if price goes up, customers respond by reducing water use. A price elasticity value of -0.2 implies that if the real price of water increases by 10%, water use would decrease by 2%. Price elasticity is estimated by detailed econometric water demand models, where price can be isolated from all other explanatory variables. Many times price is correlated with other variables making it difficult to estimate a significant statistical value. In addition, there is a potential for double counting reduction in water demand if estimates of future conservation from active programs are included in a demand forecast because customers who respond to price take advantage of utility-provided incentives for conservation. MET's 2015 IRP considers the impact of price elasticity in their future water demand scenarios, but does not include future active conservation in its demand forecast. The OC Study included future estimates of water conservation from active conservation, and thus did not include a price elasticity variable in its statistical modeling of water demand. Including both price elasticity and active conservation would have resulted in "double counting" of the future water savings.

Table 7. Water Demand Forecast with Conservation

Brea / La Habra

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	8,094	2,925	6,368	1,043	18,429
2025	8,546	3,154	6,789	1,109	19,598
2030	8,519	3,200	6,796	1,111	19,626
2035	8,475	3,313	6,762	1,113	19,663
2040	8,454	3,302	6,745	1,110	19,611

OC Basin

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	148,902	89,733	136,077	26,230	400,941
2025	157,528	97,180	147,532	28,157	430,396
2030	157,284	98,240	149,476	28,350	433,350
2035	156,263	99,076	149,552	28,342	433,233
2040	155,399	100,275	149,797	28,383	433,854

South County

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	49,212	23,793	37,326	6,620	116,951
2025	53,186	26,250	40,624	7,204	127,263
2030	53,735	26,135	40,575	7,227	127,672
2035	53,545	25,697	39,769	7,141	126,151
2040	53,496	25,509	39,602	7,116	125,725

Total Orange County

	With Conservation Demand				
	SF AFY	MF AFY	CII AFY	Non Rev AFY	Total AFY
2020	206,207	116,451	179,770	33,893	536,321
2025	219,260	126,583	194,945	36,470	577,257
2030	219,537	127,575	196,848	36,688	580,647
2035	218,283	128,086	196,082	36,596	579,047
2040	217,349	129,087	196,144	36,610	579,189

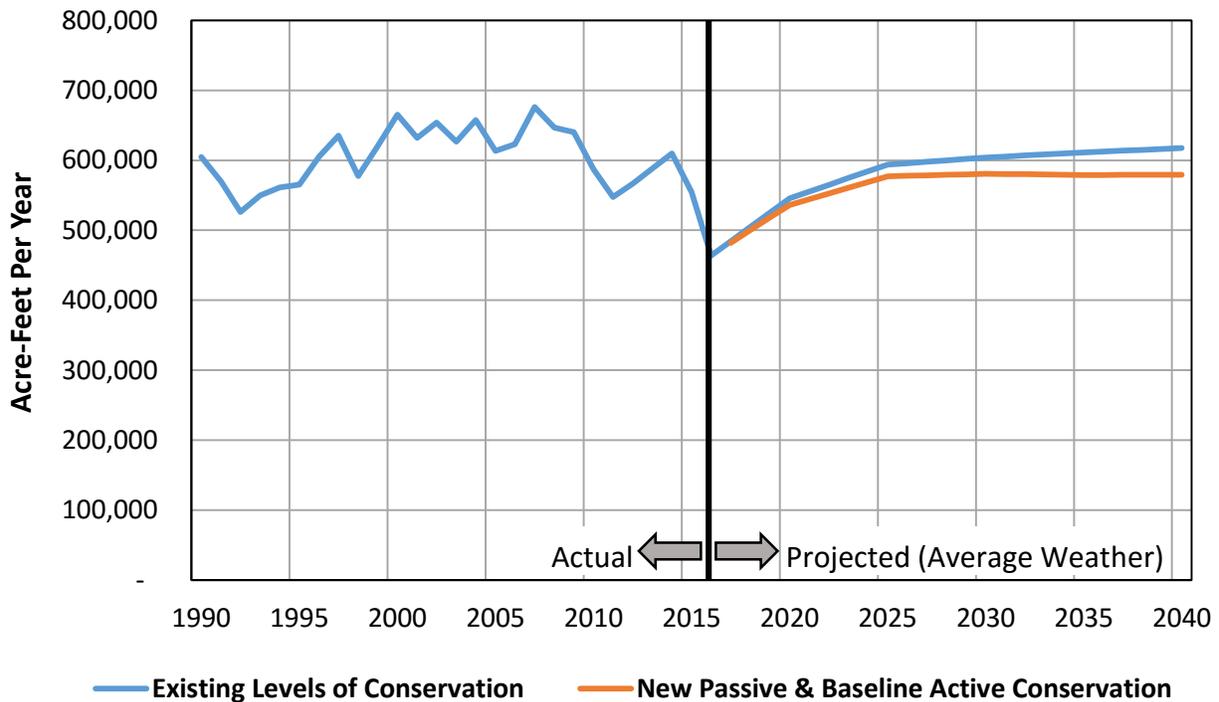


Figure 8. Water Demand Forecast for Total Orange County

3.0 Planning Scenarios

At the start of the Orange County Water Reliability Study, a workgroup was formed made up of representatives from Orange County water agencies. This OC Workgroup met 13 times during the

12-month Phase 1 of the study. During the first four meetings of the OC Workgroup, three basic planning scenarios emerged, each with and without a California WaterFix to the Delta—thus resulting in six scenarios in total. While there was discussion on assigning probabilities or weights to these planning scenarios, consensus was not reached on which scenario was more probable than the others. Assignment of the likelihood that one scenario is more probable than the others will be revisited in Phase 2 of the Orange County Reliability Study. There was, however, general agreement that all of the scenarios represent plausible future outcomes and thus all scenarios should be evaluated in terms of assessing potential water supply gaps (difference between forecasted water demands and existing water supplies). It is important to note that the purpose of estimating the water supply gaps for Orange County is to determine what additional MET and Orange County water supply investments are needed for future reliability planning. Thus, other than the California WaterFix to the Delta, all planning scenarios assume no new additional regional or Orange County water supply investments, with a couple of exceptions. In Orange County, it was assumed that existing and planned non-potable recycling projects would build additional supplies out into the future. It was also assumed that the OCWD GWRS Phase 3 expansion project would be implemented by 2022 to increase the recycled supplies for groundwater replenishment from 100,000 afy to 130,000 afy.

To develop the planning scenarios, the OC Workgroup considered the following parameters:

- California WaterFix to Sacramento-San Joaquin Delta (Cal Fix), which impacts the reliability of the State Water Project.
- Regional MET water demands and supplies, which impacts the availability of water from MET and supply reliability for Orange County.
- Orange County water demands, which impacts the supply reliability for Orange County.
- Santa Ana River baseflows, which impacts the replenishment of the OC Basin and the supply reliability for the water agencies within the OC Basin.
- Climate variability impacts on regional and local water demands and supplies, which impacts the availability of water from MET and the supply reliability for Orange County.

The definition of the six scenarios are:

- **Scenario 1a - Planned Conditions, No Cal Fix:** Essentially represents MET's IRP planning assumptions, with very little climate variability impacts (only impacting Delta supplies and not through 2040), no California Fix to the Delta, and no new regional or OC water supply investments.
- **Scenario 1b - Planned Conditions, with Cal Fix:** Same as Scenario 1a, but with new supply from the California Fix to the Delta beginning in 2030.

- **Scenario 2a - Moderately Stressed Conditions, No Cal Fix:** Moderate levels of climate variability impacts (affecting Delta, Colorado River, and Santa Ana watershed), slightly lower regional local supplies than MET assumes in IRP, 4% higher demand growth reflecting climate impacts and higher demographic growth, no California Fix to the Delta, and no new regional or OC water supply investments. The higher demand growth and fewer local supplies reflects potential future impacts if our existing demographics are low and if local supplies become more challenged, a continuation of the trend in recent times.
- **Scenario 2b - Moderately Stressed Conditions, with Cal Fix:** Same as 2a, but with new supply from California Fix to the Delta beginning in 2030.
- **Scenario 3a - Significantly Stressed Conditions, No Cal Fix:** Significant levels of climate variability impacts (affecting Delta, Colorado River, and Santa Ana watershed), 8% higher demand growth reflecting climate impacts and higher demographic growth, no California Fix to the Delta, and no new regional or OC water supply investments.
- **Scenario 3b - Significantly Stressed Conditions, with Cal Fix:** Same as 3a, but with new supply from California Fix to the Delta beginning in 2030.

All of these scenarios were deemed plausible and likely carry about the same likelihood of occurring. While no attempt was made to specifically assign the probability of any one of the six scenarios occurring over the others, some might postulate that Scenario 2 would be the most likely to occur given that most climate experts believe we are already seeing evidence of climate variability impacts today. But even with this postulation, assigning a probability to the success of the Cal Fix would be difficult at this time.

4.0 Water Supply Gap

To plan for future water supply reliability, a gap between forecasted water demands and existing supplies (plus planned projects that are a certainty) should be estimated. In past planning efforts, this gap is often done for average conditions or at best, using one reference drought condition. However, due to recent droughts and environmental restrictions in the Delta, a more sophisticated approach to estimating the potential water supply gap is needed. The OC Model, described in detail in TM #2: Development of OC Supply Simulation Model, uses “indexed-sequential” simulation to evaluate regional water demands and supplies, and Orange County water demands and supplies. All model demands and supply sources are referenced to the same hydrologic index—meaning that if a repeat of the year 1991 occurred, the OC Model would represent the availability of Delta water supplies in 1991 to MET, the availability of Colorado River water supplies in 1991 to MET, and the local Santa Ana watershed conditions in 1991. The OC Model also preserves the historical sequence of the hydrologic years. This is necessary because the source of availability of Delta and Colorado River water supplies are hydrologic models run by California Department of Water Resources (DWR) and the Bureau of Reclamation (BOR). These hydrologic models incorporate water rights (or contract rights) and storage conditions that are run using a specific sequence of hydrologic conditions. Both MET IRP and OC modeling of water supply maintain these sequences in order to

preserve the accuracy of the DWR and BOR model inputs. The hydrologic period used by the OC Model is 1922 to 2014 (which differs from MET’s IRP which is 1922 to 2012). The forecast period is 2015 to 2040. Thus, in the OC Model there are 93 25-year sequences that are mapped to the forecast period. When the year 2014 is reached in any of the sequences, the next year wraps back around starting in 1922. Table 8 illustrates how the indexed-sequential method works.

Table 8. Illustration of Indexed-Sequential Supply Simulation

Forecast Year	Hydrologic Simulation Year – Sequence 1	Hydrologic Simulation Year – Sequence 2	...	Hydrologic Simulation Year – Sequence 93
2015	1922	1923		2014
2016	1923	1924		1922
⋮	⋮	⋮		⋮
2040	1947	1948		1946

Using the SWP system as an index, approximately 12 of the 93 historical hydrologic years (13 percent) are considered critically dry; 20 years (22 percent) are considered very wet; and the remaining 61 years (65 percent) are along the below-normal, normal, and above-normal spectrum.

4.1 Assumptions for Supply Gap Analysis

Figure 9 presents the overall assumptions for the water supply gap analysis. Figure 10 presents more specific assumptions regarding groundwater in the OC Basin. In addition to these assumptions, the following summarizes some of the differences between the MET IRP and the supply gap analysis for the OC Study:

- **Simulation Period:** MET IRP uses a historical hydrology from 1922 to 2012; while the OC Study uses a historical hydrology from 1922 to 2014—capturing the recent drought.
- **Cal Fix:** When the Cal Fix is included, MET IRP assumes that new supply from Cal Fix begins in 2020, based on the assumption that a “commitment” to move forward with the Cal Fix project will result in regulatory relief, beginning in 2020; while the OC Study assumes that supplies from Cal Fix begins when project is fully operational in 2030.
- **Water Conservation:** MET IRP only includes new passive conservation in their demand forecast (with new active conservation being reserved as a new supply option); while the OC Study assumes new passive and baseline new active conservation for water demands in Orange County (additional new active conservation will be evaluated in Phase 2 of the OC Study).

- Climate Variability:** MET IRP only includes minimal impacts of climate variability for Delta water supplies through 2030; while the OC Study includes a range of climate scenario impacts on water supplies from Delta, Colorado River and Santa Ana Watershed through 2040.

Water Demands (AFY)	FY 2014 Actual	FY 2015 Actual	2025 Projected	2040 Projected
MET Demands*	2,300,000	1,850,000	1,920,000	2,028,000
OCWD Basin Demands**	453,000	410,000	425,000	434,000
OC Total Demands**	610,000	554,000	565,000	579,000

* With future passive conservation only

** With future passive and baseline new active conservation

OC Groundwater (AFY)	Brea/La Habra	Net OC Basin	South County	Total
Groundwater Supply	15,000*	188,500**	10,000	213,500

* Based on firm yield from La Habra Basin and groundwater purchases from Main San Gabriel Basin.

** Includes GWRS, SAR baseflows, SAR stormflows, incidental recharge, MET replenishment, and miscellaneous pumping.

OC Non-Potable Recycled Water (AFY)	2015	2040
OC Basin Recycled Water	22,000	27,700
South County Recycled Water	23,900	41,800
Total	45,900	69,500

Note: Irvine Ranch Water District (IRWD) is split between the Basin and South County

Figure 9. Overall Assumptions for Water Supply Gap Analysis

OC Basin Groundwater (AFY)	Near-Term	Long-Term	Range Within Model
Groundwater Replenishment System (GWRS)	100,000	130,000	100,000 to 130,000
SAR Baseflow (mid level assumption)	53,000	53,000	34,000 to 53,000
SAR Stormflow (average of all hydrologies)	53,000	53,000	6,000 to 150,000
SAR Incidental Recharge (average of all hydrologies)	59,000	59,000	20,000 to 140,000
MET Replenishment (average of all hydrologies)*	54,000	34,000	0 to 65,000
BEA Outflows	-22,000	-9,000	-22,000 to -9,000
Misc. Pumping (golf courses, etc.)	-8,500	-8,500	-8,500
Net Groundwater for OC Basin Agencies	288,500	311,500	168,000 to 455,000

* While OCWD replenishment target is 65,000 AFY, replenishment water is not assumed to be taken during very wet years when SAR stormflows are high, and only a portion of replenishment water is available during years in which MET is in allocation of imported water.

Figure 10. Assumptions for Groundwater in OC Basin

4.2 Availability of Water from MET

Key to the assessment of water reliability for Orange County is estimating the availability of imported water from MET under a wide range of scenarios. Availability of MET water to Orange County is a function of the water demands on MET and the reliability of imported water from the Colorado River and Delta to MET, supplemented by withdrawals from various MET storage accounts.

4.2.1 Demands on MET

MET water demands represent that difference between regional retail water demands (inclusive of groundwater replenishment) and regional local supplies (which includes groundwater, Los Angeles Aqueducts, surface reservoirs, groundwater recovery, recycled water, and seawater desalination). Table 9 presents the MET demand forecast under normal/average weather conditions.

A significant challenge for MET in terms of reliability planning is it represents the “swing” water supply for the region. This compounds the variability on demands on MET due to weather and hydrology. For retail water demands, variations in weather can cause water use to change ± 5 to 9 percent in any given year due to varying demands for irrigation and cooling. In addition to retail water demand variability, local supplies can vary ± 80 percent for the Los Angeles Aqueducts and ± 55 percent for surface reservoirs. Thus, the variability for demands on MET in any given year can be ± 15 to 25 percent. This fact alone makes storage so key in assuring supply reliability for MET and the region.

Table 9. Demands on MET

Total Demand (AFY)	2020	2030	2040
Retail M&I	3,707,546	3,865,200	3,954,814
Retail Agricultural	169,822	163,121	159,537
Seawater Barrier	66,500	66,500	66,500
Replenishment	292,777	272,829	272,847
Total Demand	4,236,645	4,367,650	4,453,698

Local Supplies (AFY)			
Groundwater Production	1,308,101	1,321,220	1,322,197
Surface Production	113,705	113,705	113,705
Los Angeles Aqueduct	261,100	264,296	267,637
Seawater Desalination	50,637	50,637	50,637
Groundwater Recovery	142,286	158,816	162,688
Recycled Water	425,131	468,862	495,698
Other Non-Metropolitan Imports	13,100	13,100	13,100
Total Local Supplies	2,314,061	2,390,637	2,425,663

Demand On MET (AFY)			
Consumptive Use	1,743,866	1,826,245	1,880,131
Seawater Barrier	11,635	8,708	5,877
Replenishment	167,083	142,060	142,027
Total Net Demand on Metropolitan	1,922,584	1,977,013	2,028,035

4.2.2 Supplies from Colorado River and Delta

MET's water supply from the Colorado River, via the Colorado River Aqueduct (CRA), has historically been the backbone to MET's supply reliability. Before the settlement agreement between lower Colorado River Basin states and water agencies that use Colorado River water within California, MET kept the CRA full at 1.2 million acre-feet (maf) per year or nearly at that level in many years. The settlement agreement requires California to live within its 4.4 maf apportionment, and dictates how Colorado River water within California is prioritized. This eliminated most of the surplus water that MET was using to keep the CRA full. To deal with this challenge, MET has developed a number of water transfers and land fallowing programs to mitigate the impacts of the settlement agreement. The 2015 MET IRP is assuming that it will maintain minimum CRA supply of 0.90 maf, with a goal of a full CRA during dry years, when needed (although it is not specified exactly how that will occur).

For the OC Study, we have assumed similar baseline assumptions as the MET IRP, but have added some uncertainties with regard to climate scenarios under Scenario 2 and more significant impacts under Scenario 3. Under significant climate scenario impacts (Scenario 3), where the BOR simulates that Lake Mead elevation would fall below 1,000 feet about 80 percent of the time, the OC Study assumed MET would get a proportionate share of shortages that are allocated by BOR. Exactly how BOR would manage water shortages when Lake Mead elevation falls below 1,000 is uncharted territory, but assuming some proportional allocation of Colorado River water among the Lower Basin states and within California is a plausible scenario. Figure 11 presents the assumed CRA water supplies to MET for the OC Study with (Scenario 3) and without (Scenarios 1 & 2) significant climate scenario impacts. Under the significant climate scenario (Scenario 3), there is a 50 percent probability that CRA deliveries would be below 815,000 afy and a 20 percent probability that CRA deliveries would be below 620,000 afy.

The other main source of imported water available to MET is from the Delta and is delivered to Southern California via the State Water Project (SWP). Although MET's contract for SWP water is 2.0 maf, it has never received that amount. Prior to the QSA (in 2003) when MET relied more heavily on CRA supplies, the maximum water taken by MET from the SWP exceeded 1.1 maf in only three years (1989, 1990 and 2000). Beginning in 2001, MET has tried to maximize their delivery of SWP water. In very wet years, MET typically receives about 1.7 maf of supply from the SWP (about 80 to 85% of their total contract). More typically, MET receives closer to 1.2 maf of supply from the SWP (about 60% of their maximum contract). Droughts and environmental regulatory restrictions in the Delta have greatly impacted the reliability of SWP supply. Biological opinions regarding endangered species not only limit Delta exports during dry years, but have greatly impacted exports during more normal years when water agencies such as MET are counting on such water for storage replenishment.

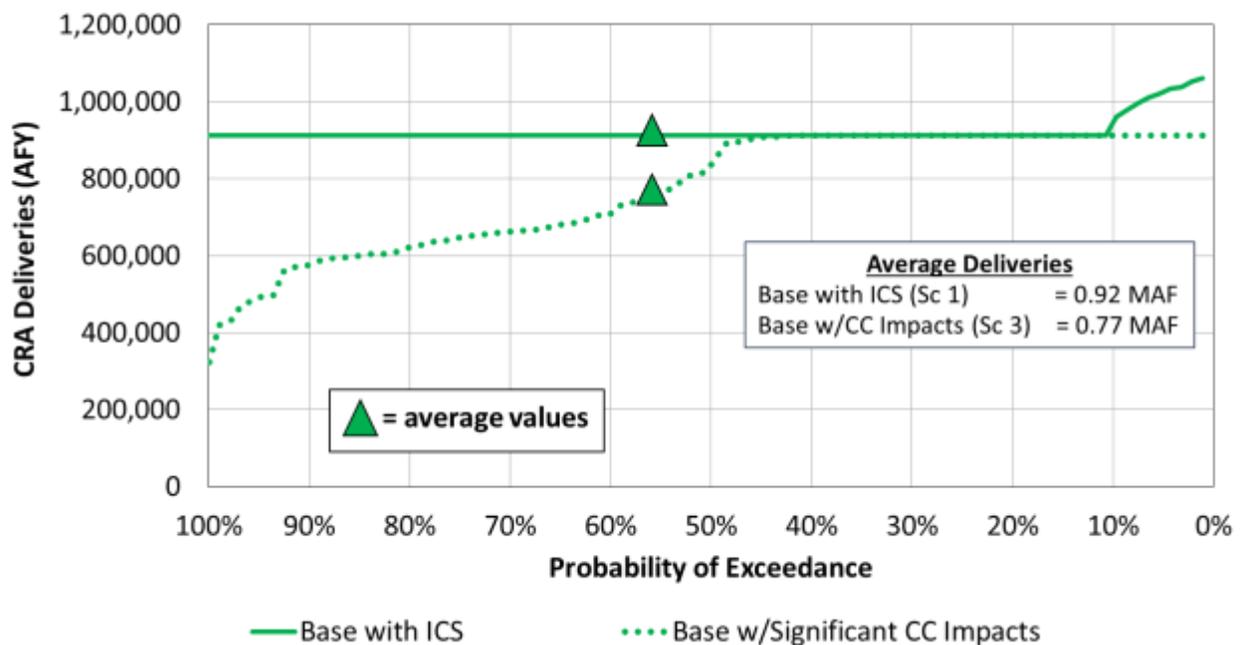


Figure 11. Colorado River Aqueduct Deliveries to MET

To stabilize the decline in SWP deliveries, California has committed to the California WaterFix (Cal Fix) and California EcoRestore. In the long-term, the preferred alternative identified in Cal Fix is expected to increase SWP deliveries (above what they otherwise would have been) by providing more flexible water diversions through improved conveyance and operations. It is important to note that the Cal Fix does not generate **NEW** water supplies per se, but allows supplies lost due to regulatory restrictions to be regained. This project would also provide much needed resiliency during seismic events in the Delta. The new conveyance and diversion facilities will allow for increased water supply reliability and a more permanent solution for flow-based environmental standards. The anticipated implementation of the Cal Fix is expected to be around 2030. Assuming a more flexible, adaptive management strategy, MET is assuming that if Cal Fix moves forward that regulatory relief from further biological opinions in the Delta would occur and SWP deliveries would return to pre-biological opinion deliveries as soon as 2020. However, some might argue this is an optimistic assumption, and there is no certainty that such relief would occur until the project is operational. Therefore for the GAP analysis, the OC Study assumed that improved SWP deliveries from Cal Fix would begin in 2030.

Climate variability can further reduce the reliability of SWP deliveries. The source of water that is pumped from the Delta originates in the Sierra Nevada Mountains as snowpack. It is widely accepted by climate and hydrology experts that climate scenario impacts on snowpack-driven water supplies is even more significant because even a fraction of a degree increase leads to early snowmelt which reduces the ability to capture river flows in surface reservoirs. Using methods described in TM#2, CDM Smith and its climate scenario expert Dr. David Yates estimated the potential impacts to the SWP under significant climate scenario. These estimates are similar to

earlier work that California DWR did on climate scenario impacts on SWP reliability. Figure 12 presents the full range of SWP deliveries to MET with and without Cal Fix and with and without significant climate scenario impacts. As shown, the Cal Fix greatly improves the reliability of SWP supplies to MET—with an average increase in supply (restoration of supplies compared to the no project alternative) of over 400,000 afy. Significant climate scenario reduces SWP deliveries by an average of 200,000 afy, even with the Cal Fix.

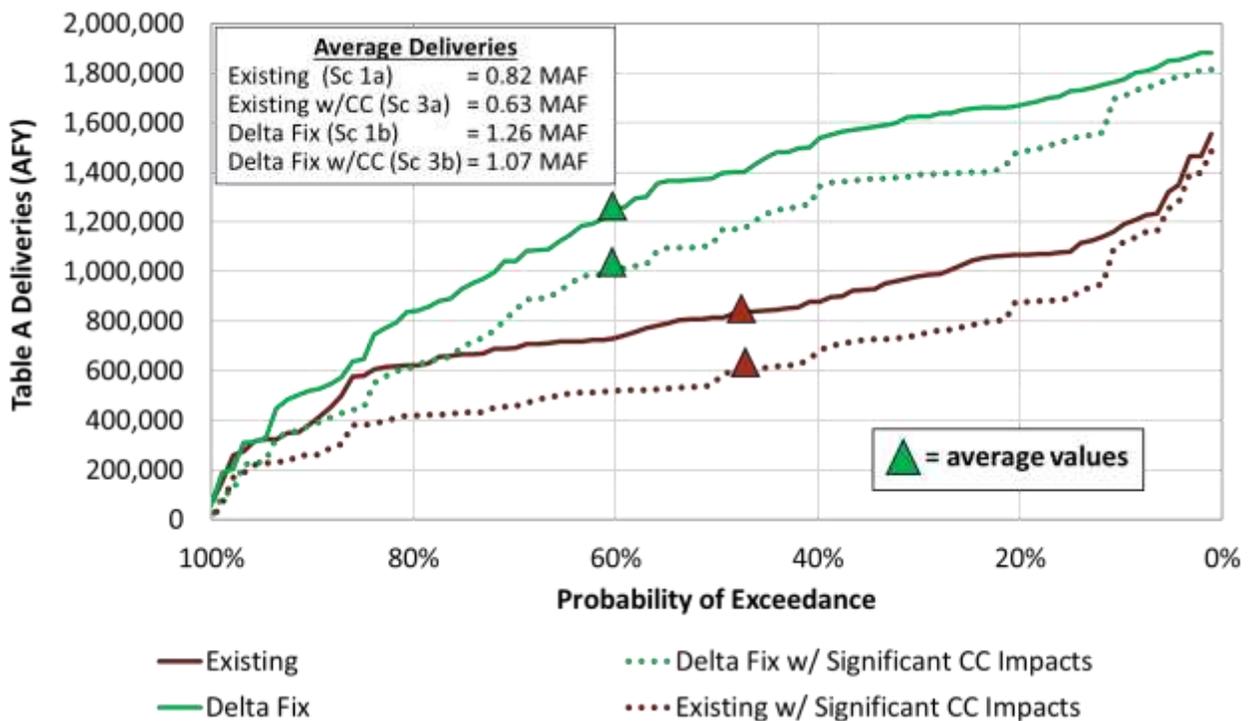


Figure 12. State Water Project Deliveries to MET

4.2.3 Overall MET Reliability

In addition to CRA and SWP water, MET has significant surface storage and groundwater storage programs. MET also has a number of water transfers in the Central Valley. These investments have been critical for the region’s supply reliability during droughts. However, since the first MET IRP in 1996 MET has had to allocate its imported water to its member agencies three in the last seven years.

Using the indexed-sequential simulation method described in TM#2, MET water reliability can be illustrated for several hydrologic sequences. Figures 13, 14 and 15 utilize just 2 of the 93 hydrology sequences to demonstrate how the analysis works. Figure 13 shows the MET demands and supplies without a Cal Fix for the forecast period 2015 to 2040 with the last 25-year hydrologic sequence of 1989 to 2014 imposed. In other words, forecast year 2015 is 1989, 2016 is 1990 ... and 2040 is 2014. Of all the 93 possible 25-year hydrologic sequences, this one is the worst in terms of cumulative supply shortages.

Figure 14 shows Met demands and supplies without a Cal Fix for a more normal hydrology sequence imposed on the forecast period (this sequence begins with 1950 and ends in 1975). Even with a normal hydrology, there are still some water shortages in the later years. Figure 15, shows this same hydrology (1950 to 1975) but with a Cal Fix. Under this scenario, regional storage replenishes greatly and shortages in the later years are eliminated.

When all 93 hydrologic sequences are simulated, and under all six scenarios representing various climate scenarios and Cal Fix assumptions, the probability of MET shortages exceeding 15 percent can be derived. A regional 15 percent shortage is similar to the allocation MET imposed in 2015. Figure 16 presents this probability of MET shortage. The results presented here for Scenario 1 with and without Cal Fix are similar to those presented in MET’s Draft IRP.

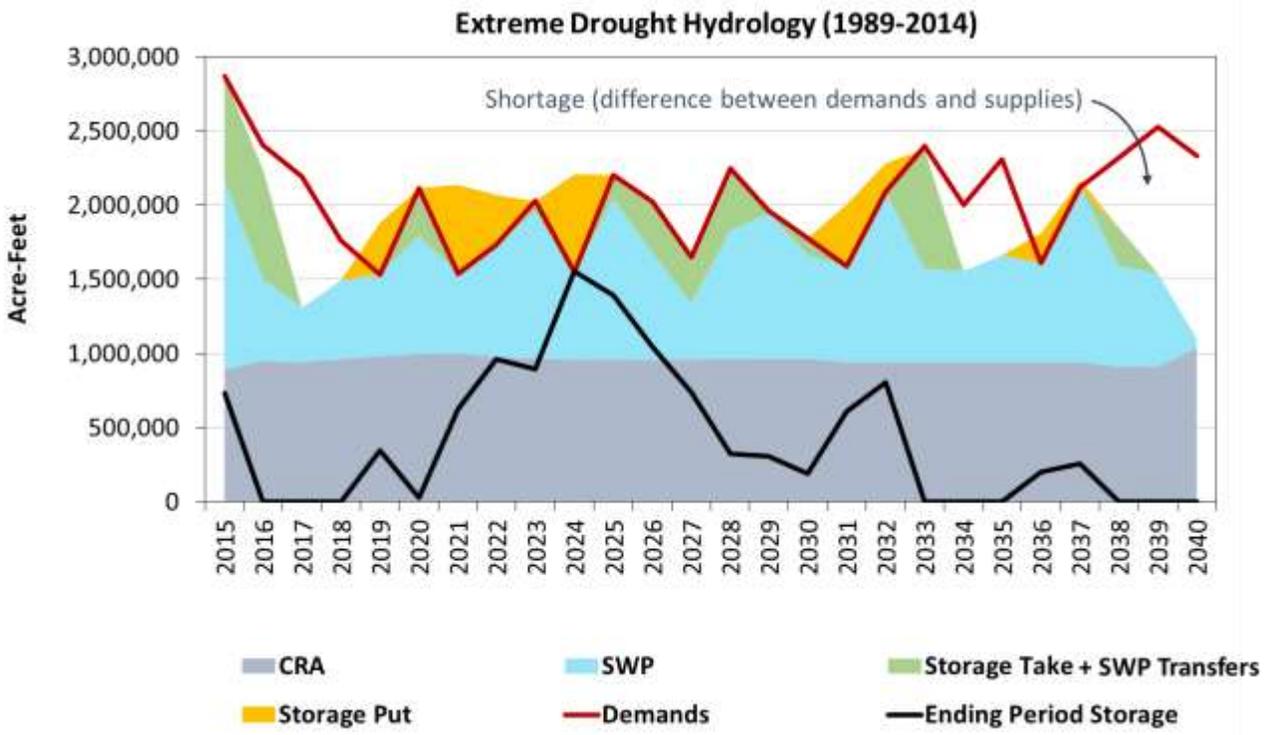


Figure 13. MET Reliability under Drought, for Scenario 1a (no Climate variability, no Cal Fix)

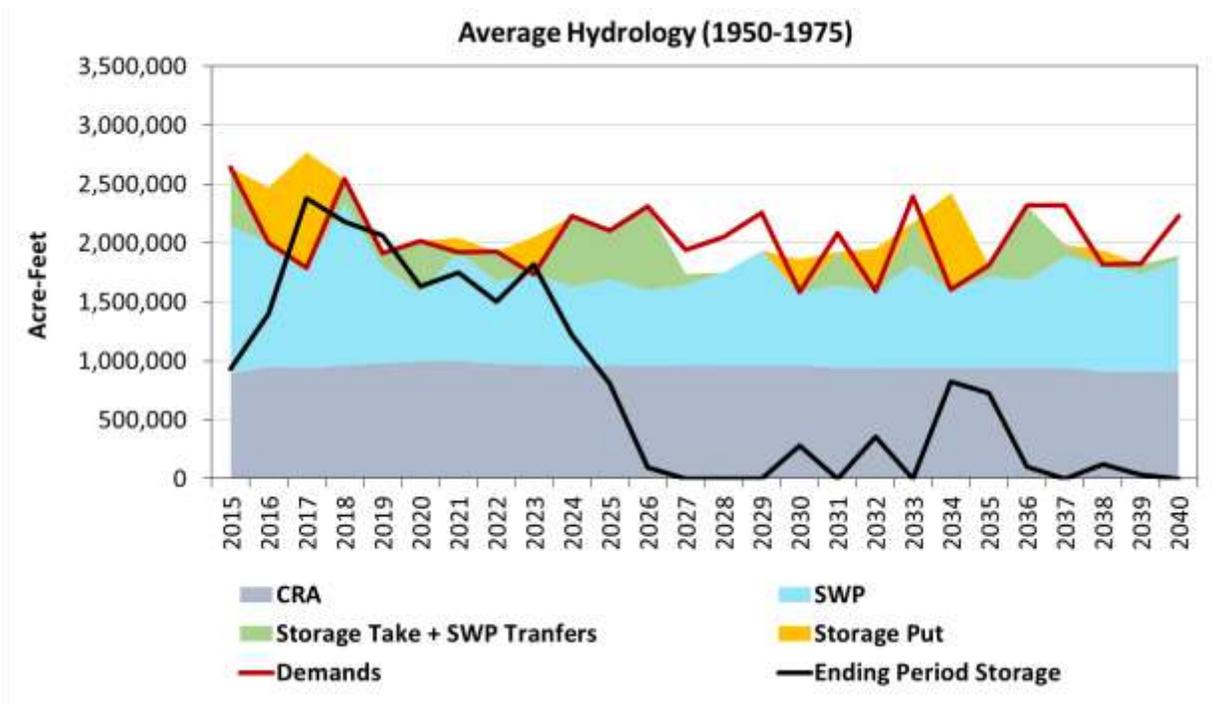


Figure 14. MET Reliability under Average Hydrology, for Scenario 1a (no Climate variability, no Cal Fix)

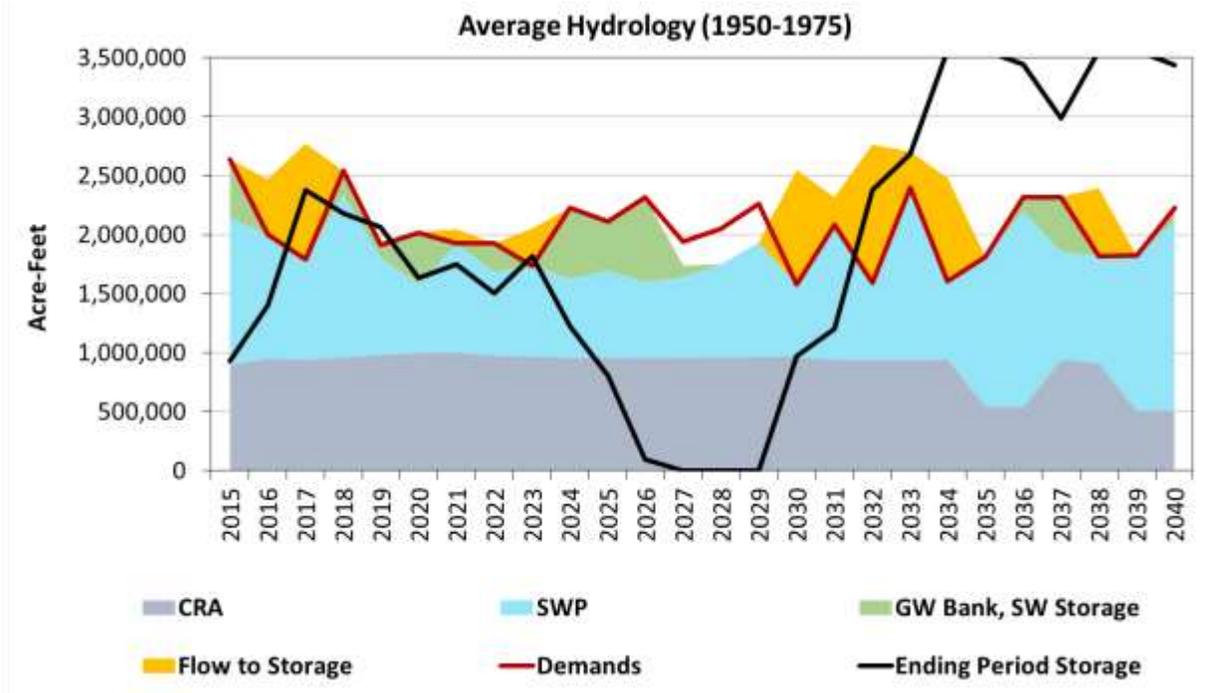


Figure 15. MET Reliability under Average Hydrology, for Scenario 1b (no Climate variability, with Cal Fix)

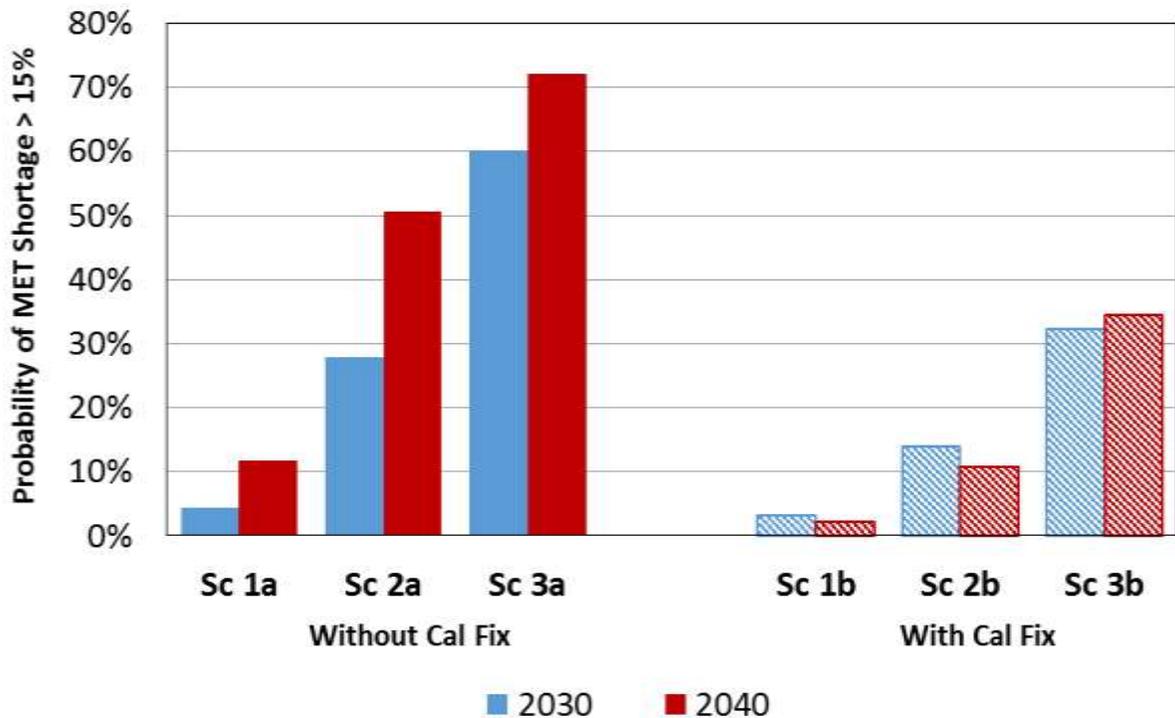


Figure 16. MET Supply Reliability (Percent of Time MET Supply Shortage Greater than 15%)

As shown in Figure 16, the impacts of climate variability (Scenarios 2 and 3) can be significant in increasing the probability and magnitude of MET shortages. In 2040, significant climate scenario (Scenario 3) can increase the probability of shortage by 60 percent without Cal Fix. The analysis also shows the enormous benefit that Cal Fix can have on MET reliability, decreasing the probability of shortage from 50 percent in 2040 to 10 percent under Scenario 2.

4.3 Orange County Water Supply Gap

When MET shortages occur, imported water is allocated to Orange County based on MET’s current drought allocation formula. For the OC Basin, the estimation of the water supply gap required that the OC Model be able to simulate the way OCWD manages the OC Basin. The OC Basin’s Basin Production Percentage (BPP) was set in the model to look forward each year and estimate all inflows to the basin, then set the BPP so that the cumulative overdraft in the basin would not exceed 500,000 af. In addition, the model does not allow the change in overdraft to exceed certain thresholds—essentially trying to keep some managed overdraft in the basin.

Note: Modeling the management of the OCWD basin is complex, especially with respect to future uncertainties. The discussion of this effort herein was an initial attempt to reflect on how the BPP could be set within the context of a modeling effort. Since this initial effort, CDM Smith and OCWD have met a number of times to refine the analysis for the Phase 2 effort. The refined analysis will be documented in the final Project Technical Memorandum.

Figure 17 presents a simulation of the OC Basin for the forecast period of 2015 to 2040, under an extreme drought hydrology of 1989 to 2014. Under Scenario 1, with no climate scenario and no Cal Fix, Figure 17 shows the pumping from the basin (blue line), the sources of inflows to the basin (shaded color areas), the cumulative basin overdraft (red line), and the BPP (dashed black line read on right-hand axis).

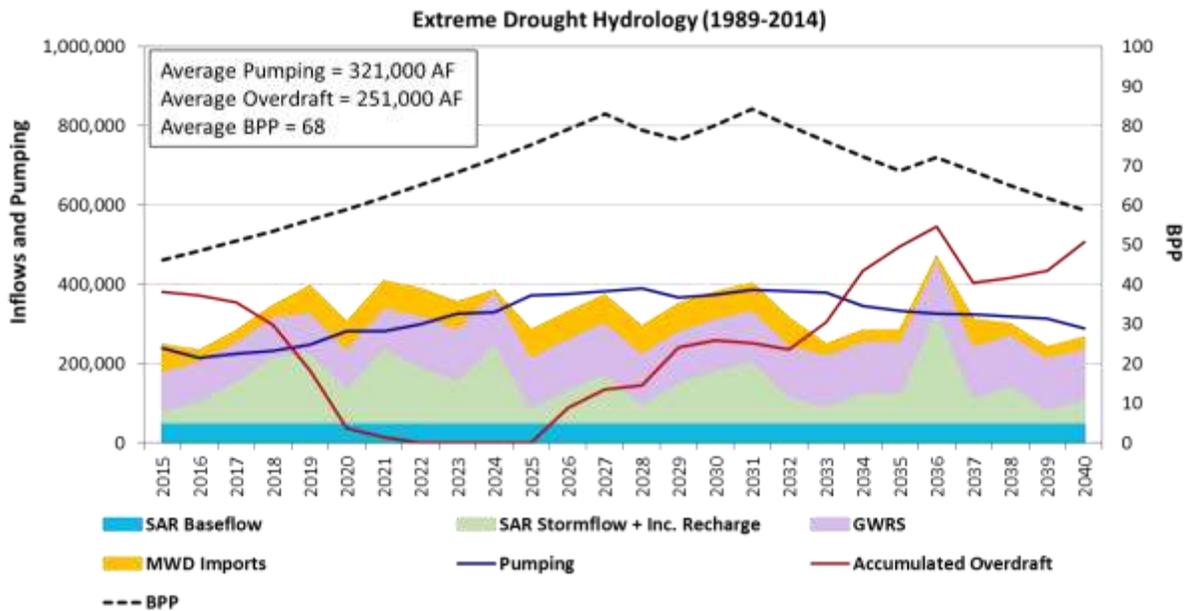


Figure 17. Simulation of OC Basin under Drought, for Scenario 1a (no Climate scenario, no Cal Fix)

When the other local Orange County water supplies from the Brea/La Habra and South County areas are added to the simulation, the OC Model estimates the overall supply reliability for the OC County total. Using all 93 hydrologic sequences, a probability chart can be created. The probability chart shows the percent time that any water shortage occurs and to what magnitude. Figure 18 shows the overall reliability for OC County total for Scenarios 1a, 2a and 3a (no Cal Fix) for the year 2040. As shown on this chart, there is a 50 percent chance that some level of shortage occurs for Scenario 1a. This probability of some shortage occurring increases to 80 percent for Scenario 2a and 98 percent for Scenario 3a. The average shortages are 32,000 afy, 74,000 afy, and 126,000 afy for Scenarios 1a, 2a, and 3a respectively.

Figure 19 compares Scenarios 1, 2, and 3 with and without the Cal Fix. As shown in Figure 19, the Cal Fix dramatically reduces the probability of shortages and thus the average shortages. The average shortages under the Cal Fix are 5,000 afy, 17,000 afy, and 64,000 afy for Scenarios 1b, 2b, and 3b respectively. The one thing to note, however, is that the maximum shortages (which occur about 1 to 3 percent of the time) are not reduced substantially with the Cal Fix. These maximum shortages may require a multipronged strategy to minimize or eliminate, such as new base-loaded supplies, storage, water transfers and mandatory restrictions on some water uses.



Figure 18. Probability of Water Shortages (Gap) for Orange County Total, No Cal Fix

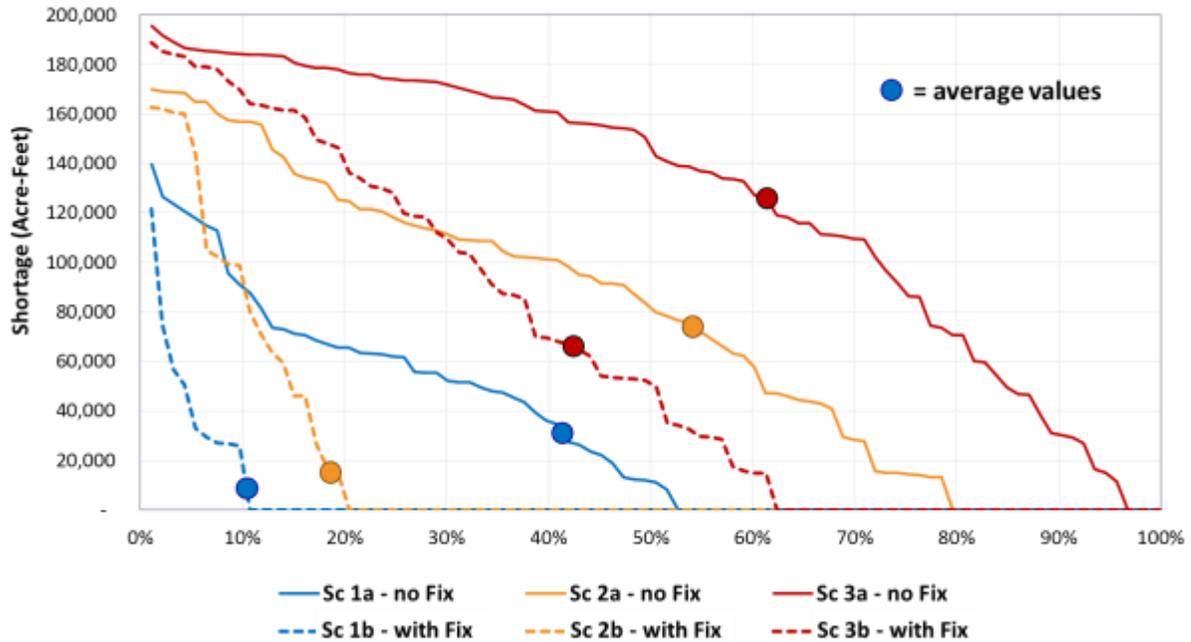


Figure 19. Probability of Water Shortages (Gap) for Orange County Total, with Cal Fix

This supply reliability analysis was done for all three areas of the Orange County, Brea/La Habra, OC Basin, and South County. The average water shortages (averaged for all 93 hydrologic sequences) are shown in Table 10 for all six scenarios.

Table 10. Summary of Average Water Supply Gap for Orange County Areas (acre-feet year)

Area	Scenario 1		Scenario 2		Scenario 3	
	a – no Fix	b – with Fix	a – no Fix	b – with Fix	a – no Fix	b – with Fix
Brea / La Habra						
2020	110 (1%)	110 (1%)	160 (1%)	160 (1%)	250 (1%)	250 (1%)
2040	820 (4%)	130 (1%)	1,800 (9%)	430 (2%)	3,100 (15%)	1,600 (8%)
OC Basin						
2020	3,800 (1%)	3,800 (1%)	5,300 (1%)	5,300 (1%)	9,300 (2%)	9,300 (2%)
2040	19,000 (5%)	2,800 (1%)	49,000 (12%)	11,000 (3%)	85,000 (20%)	42,000 (10%)
South County						
2020	2,100 (2%)	2,100 (2%)	3,000 (3%)	3,000 (3%)	4,800 (4%)	4,800 (4%)
2040	12,000 (9%)	1,900 (2%)	23,000 (18%)	5,600 (4%)	38,000 (28%)	20,000 (15%)
OC Total						
2020	6,000 (1%)	6,000 (1%)	8,500 (2%)	8,500 (2%)	14,000 (3%)	14,000 (3%)
2040	32,000 (6%)	4,800 (1%)	74,000 (13%)	17,000 (3%)	126,000 (21%)	64,000 (11%)

* Numbers in parentheses () represent % of water demand.

5.0 Conclusions

While no attempt was made during Phase 1 of the OC Study to assign the likelihood of any one of the six scenarios occurring over the others, some might postulate that Scenario 2 would be the most likely to occur given that most climate experts believe we are already seeing evidence of climate variability impacts today. This all said, a number of observations can be made from this study, which are:

1. The most sensitive model parameters are:
 - Whether or not the Cal Fix is implemented, and by when
 - The extent that climate variability impacts our supply reliability, which can take many forms:
 - Loss of the snowpack in the Sierras and Rocky’s affecting imported water
 - Higher reservoir evapotranspiration
 - Reduced groundwater recharge statewide and locally
 - Increased water demands for irrigation and cooling from higher temperatures
 - Requires increase storage to capture and utilize available supplies

2. The range in water supply gaps carry different implications, namely:
 - Under Scenario 1a (no climate variability, no Cal Fix), supply shortages are fairly manageable, with average shortages in 2040 being about 6% of demand with an occurrence of about 4 in 10 years.
 - Under Scenario 2a (moderate climate variability, no Cal Fix), supply shortages require moderate levels of new investments, with average shortages in 2040 being about 13% of demands with an occurrence of about 5 in 10 years.
 - Under Scenario 3a (significant climate variability, no Cal Fix), supply shortages require significant levels of new investments, with average shortages in 2040 being about 21% of demands with an occurrence of about 6 in 10 years.
 - Scenarios with Cal Fix significantly reduce average shortages by 85% for Scenario 1, by 77% for Scenario 2, and by 50% for Scenario 3 in 2040.
 - Modest shortages begin in 2020, 8,500 AF per year on average (about 2% of demands) with an occurrence of about 1 in 10 years
3. Decisions made by Orange County water agencies to improve water supply reliability with local water supply investments should consider the following:
 - The large influence of the Cal Fix. MET and Orange County are much more reliable with the Cal Fix; however, the following questions are posed:
 - What is the implication for triggering Orange County supply investments as long as the Cal Fix is an uncertainty?
 - How long should Orange County wait to see where the Cal Fix is headed? 3, 5 or 10 years?
 - What types of Orange County supply investment decisions would be beneficial whether or not the Cal Fix proceeds ahead?
 - MET is potentially undertaking a NEW Indirect Potable Reuse project.
 - What are the implications of this project for decision-making in Orange County?
 - Other MET investments in its recommended 2015 IRP.
 - What success rate does Orange County attribute to these planned MET water supply investments?
 - Will the success rate be influenced by the Cal Fix? (e.g., additional storage without Cal Fix may not provide much benefit if there is no replenishment water during normal hydrologic years)

Phase 2 of the OC Study seeks to address these observations in a collaborative way by providing insights as to the various cost implications of different portfolios made up from MET, the MET member agencies and Orange County water supply options and to discuss policy implications for MET and Orange County. The combined information from Phases 1 and 2 would give local decision

makers both an idea of the risk of water supply shortages under a wide range of plausible scenarios, and the range of cost implications for mitigating the shortages. The intent of the OC Study, however, is to not to make any specific recommendations as to which supply options should be implemented, but rather present common information in an objective manner for local decision making.

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APPENDIX H

AWWA Water Loss Audit Worksheet



AWWA Free Water Audit Software v5.0

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This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targetting loss reduction levels

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:

Email Address:

Telephone (incl Ext.):

Name of City / Utility:

City/Town/Municipality:

State / Province:

Country:

Year: Financial Year

Start Date: Enter MM/YYYY numeric format

End Date: Enter MM/YYYY numeric format

Audit Preparation Date:

Volume Reporting Units:

PWSID / Other ID:

The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

- Value can be entered by user
- Value calculated based on input data
- These cells contain recommended default values

Use of Option (Radio) Buttons: Pcnt: Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

<p><u>Instructions</u></p> <p>The current sheet. Enter contact information and basic audit details (year, units etc)</p>	<p><u>Reporting Worksheet</u></p> <p>Enter the required data on this worksheet to calculate the water balance and data grading</p>	<p><u>Comments</u></p> <p>Enter comments to explain how values were calculated or to document data sources</p>	<p><u>Performance Indicators</u></p> <p>Review the performance indicators to evaluate the results of the audit</p>	<p><u>Water Balance</u></p> <p>The values entered in the Reporting Worksheet are used to populate the Water Balance</p>	<p><u>Dashboard</u></p> <p>A graphical summary of the water balance and Non-Revenue Water components</p>
<p><u>Grading Matrix</u></p> <p>Presents the possible grading options for each input component of the audit</p>	<p><u>Service Connection Diagram</u></p> <p>Diagrams depicting possible customer service connection line configurations</p>	<p><u>Definitions</u></p> <p>Use this sheet to understand the terms used in the audit process</p>	<p><u>Loss Control Planning</u></p> <p>Use this sheet to interpret the results of the audit validity score and performance indicators</p>	<p><u>Example Audits</u></p> <p>Reporting Worksheet and Performance Indicators examples are shown for two validated audits</p>	<p><u>Acknowledgements</u></p> <p>Acknowledgements for the AWWA Free Water Audit Software v5.0</p>

If you have questions or comments regarding the software please contact us via email at: wlc@awwa.org



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association
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?	Click to access definition
+	Click to add a comment

Water Audit Report for: **San Juan Capistrano**
Reporting Year: **2014-2015** **7/2014 - 6/2015**

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	+ ?	5	2,096.512	acre-ft/yr
Water imported:	+ ?	7	5,462.885	acre-ft/yr
Water exported:	+ ?			acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	Value:		acre-ft/yr
+ ?	3	<input checked="" type="radio"/> <input type="radio"/>	
+ ?	7	<input checked="" type="radio"/> <input type="radio"/>	
+ ?		<input checked="" type="radio"/> <input type="radio"/>	

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: **7,559.397** acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	+ ?	6	6,661.272	acre-ft/yr
Billed unmetered:	+ ?	n/a		acre-ft/yr
Unbilled metered:	+ ?	n/a		acre-ft/yr
Unbilled unmetered:	+ ?	3	16.650	acre-ft/yr

Click here: ?
for help using option buttons below

Pcnt:	Value:		acre-ft/yr
		<input type="radio"/> <input checked="" type="radio"/>	16.650

Use buttons to select percentage of water supplied
OR
value

AUTHORIZED CONSUMPTION: **6,677.922** acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

881.475 acre-ft/yr

Apparent Losses

Unauthorized consumption: + ? **18.898** acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ?	4	350.593	acre-ft/yr
Systematic data handling errors:	+ ?	5	16.653	acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **386.145** acre-ft/yr

Pcnt:	Value:		acre-ft/yr
0.25%		<input checked="" type="radio"/> <input type="radio"/>	

5.00%		<input checked="" type="radio"/> <input type="radio"/>	
0.25%		<input checked="" type="radio"/> <input type="radio"/>	

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **495.331** acre-ft/yr

WATER LOSSES: **881.475** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **898.125** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	8	214.1	miles
Number of <u>active AND inactive</u> service connections:	+ ?	5	11,253	
Service connection density:	?		53	conn./mile main

Are customer meters typically located at the curbside or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 2 60.0 psi

COST DATA

Total annual cost of operating water system:	+ ?	10	\$26,514,000	\$/Year
Customer retail unit cost (applied to Apparent Losses):	+ ?	8	\$4.28	\$/100 cubic feet (ccf)
Variable production cost (applied to Real Losses):	+ ?	7	\$1,100.22	\$/acre-ft <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 64 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported

2: Customer metering inaccuracies

3: Volume from own sources



AWWA Free Water Audit Software: System Attributes and Performance Indicators

WAS v5.0
American Water Works Association.
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Water Audit Report for: San Juan Capistrano
Reporting Year: 2014-2015 | 7/2014 - 6/2015

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 64 out of 100 ***

System Attributes:

	Apparent Losses:	386.145	acre-ft/yr
+	Real Losses:	495.331	acre-ft/yr
=	Water Losses:	881.475	acre-ft/yr

? Unavoidable Annual Real Losses (UARL): 191.29 acre-ft/yr

Annual cost of Apparent Losses: \$720,375

Annual cost of Real Losses: \$544,973 Valued at **Variable Production Cost**

Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial: { Non-revenue water as percent by volume of Water Supplied: 11.9%
Non-revenue water as percent by cost of operating system: 4.8% Real Losses valued at Variable Production Cost

Operational Efficiency: { Apparent Losses per service connection per day: 30.63 gallons/connection/day
Real Losses per service connection per day: 39.30 gallons/connection/day
Real Losses per length of main per day*: N/A
Real Losses per service connection per day per psi pressure: 0.65 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 495.33 acre-feet/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 2.59

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline



AWWA Free Water Audit Software: Water Balance

WAS v5.0

American Water Works Association.

Water Audit Report for:	San Juan Capistrano	
Reporting Year:	2014-2015	7/2014 - 6/2015
Data Validity Score:	64	

	Water Exported	Billed Water Exported				
	<i>0.000</i>		Billed Authorized Consumption	Billed Metered Consumption (water exported is removed)	Revenue Water	
Own Sources (Adjusted for known errors) 2,096.512	Water Supplied 7,559.397	Authorized Consumption 6,677.922	6,661.272	6,661.272	6,661.272	
				0.000		
		Water Losses 881.475	Apparent Losses 386.145	16.650	0.000	898.125
					16.650	
	18.898					
Water Imported 5,462.885	Real Losses 495.331		350.593			
			16.653			
			16.653			
			18.898			
			350.593			
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AWWA Free Water Audit Software: Dashboard

WAS v5.0

American Water Works Association.

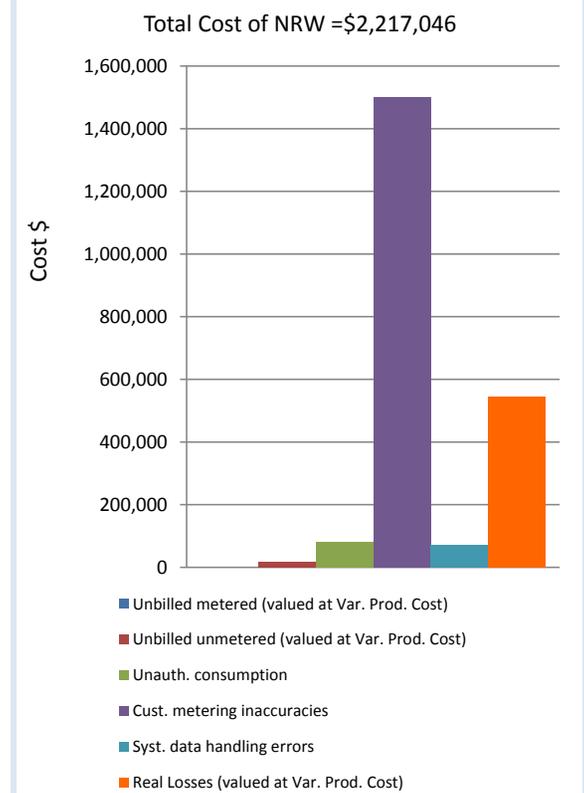
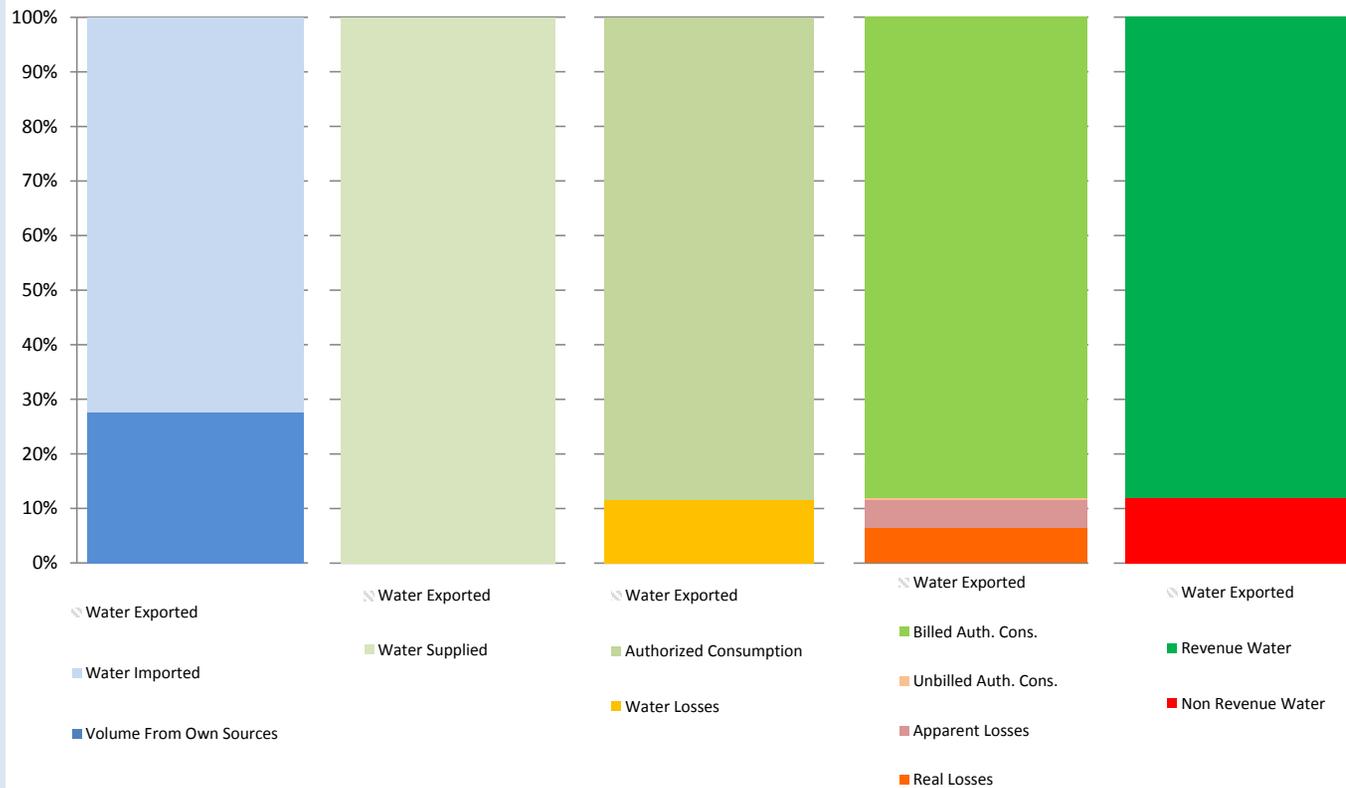
The graphic below is a visual representation of the Water Balance with bar heights proportional to the volume of the audit components

Water Audit Report for: **San Juan Capistrano**

Reporting Year: **2014-2015** **7/2014 - 6/2015**

Data Validity Score: **64**

- Show me the VOLUME of Non-Revenue Water
- Show me the COST of Non-Revenue Water



APPENDIX I

Water Use Efficiency Implementation Report



Orange County

Water Use Efficiency Programs Savings and Implementation Report

Retrofits and Acre-Feet Water Savings for Program Activity

Program	Program Start Date	Retrofits Installed in	Month Indicated		Current Fiscal Year		Overall Program		
			Interventions	Water Savings	Interventions	Water Savings	Interventions	Annual Water Savings[4]	Cumulative Water Savings[4]
High Efficiency Clothes Washer Program	2001	October-15	532	1.53	2,244	16.15	105,611	3,644	20,708
Smart Timer Program - Irrigation Timers	2004	October-15	1	0.00	371	15.65	13,438	4,655	28,933
Rotating Nozzles Rebate Program	2007	October-15	3,709	14.83	18,064	135.73	478,934	2,422	9,721
SoCal WaterSmart Commercial Plumbing Fixture Rebate Program	2002	September-15	2,767	7.65	3,622	18.06	51,788	3,518	34,157
Water Smart Landscape Program [1]	1997	September-15	12,690	905.55	12,690	2,710.58	12,690	10,632	71,574
Industrial Process Water Use Reduction Program	2006	September-15	0	11.26	1	11.26	14	357	1,357
Turf Removal Program ^[3]	2010	November-15	947,615	11.05	2,868,923	68	10,386,596	1,454	2,982
High Efficiency Toilet (HET) Program	2005	October-15	2,337	8.28	8,102	114.87	54,376	2,010	11,439
Home Water Certification Program	2013	October-15	11	0.022	42	0.147	301	7.080	15.007
Synthetic Turf Rebate Program	2007						685,438	96	469
Ultra-Low-Flush-Toilet Programs ^[2]	1992						363,926	13,452	162,561
Home Water Surveys ^[2]	1995						11,867	160	1,708
Showerhead Replacements ^[2]	1991						270,604	1,667	19,083
Total Water Savings All Programs				960	2,914,059	3,090	12,435,583	44,073	364,706

(1) Water Smart Landscape Program participation is based on the number of water meters receiving monthly Irrigation Performance Reports.

(2) Cumulative Water Savings Program To Date totals are from a previous Water Use Efficiency Program Effort.

(3) Turf Removal Interventions are listed as square feet.

(4) Cumulative & annual water savings represents both active program savings and passive savings that continues to be realized due to plumbing code changes over time.

HIGH EFFICIENCY CLOTHES WASHERS INSTALLED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 06/07	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY13/14	FY14/15	FY15/16	Total	Current FY Water Savings Ac/Ft (Cumulative)	Cumulative Water Savings across all Fiscal Years	15 yr. Lifecycle Savings Ac/Ft
Brea	132	175	156	42	186	144	93	115	114	43	1,777	0.30	346.91	919
Buena Park	85	114	146	59	230	145	105	106	91	24	1,412	0.19	263.13	731
East Orange CWD RZ	18	22	17	3	23	10	10	8	8	4	185	0.03	38.21	96
El Toro WD	91	113	130	32	162	112	134	121	111	29	1,438	0.23	267.47	744
Fountain Valley	205	219	243	72	289	158	115	102	110	37	2,296	0.24	467.55	1,188
Garden Grove	238	304	332	101	481	236	190	162	165	42	3,227	0.36	641.93	1,670
Golden State WC	339	401	447	168	583	485	265	283	359	106	4,723	0.80	909.33	2,444
Huntington Beach	761	750	751	211	963	582	334	295	319	89	7,930	0.64	1,649.30	4,103
Irvine Ranch WD	1,972	2,052	1,844	1,394	2,621	2,170	1,763	1,664	1,882	676	22,448	4.63	4,161.08	11,615
La Habra	96	136	83	22	179	128	82	114	87	25	1,233	0.16	230.28	638
La Palma	33	35	51	25	76	46	34	25	34	10	429	0.07	78.92	222
Laguna Beach CWD	57	77	77	27	96	57	38	37	39	23	904	0.16	181.03	468
Mesa Water	239	249	246	73	232	176	114	86	89	27	2,352	0.21	498.68	1,217
Moulton Niguel WD	652	716	742	250	1,127	679	442	421	790	337	8,995	2.42	1,691.75	4,654
Newport Beach	245	270	259	57	197	142	116	92	95	36	2,533	0.28	540.91	1,311
Orange	366	365	403	111	349	262	218	163	160	54	3,748	0.44	781.73	1,939
Orange Park Acres	4	8	-	-	-	-	-	-	-	-	12	0.00	3.09	6
San Juan Capistrano	109	103	127	43	190	110	76	73	92	34	1,397	0.30	271.08	723
San Clemente	204	261	278	63	333	206	140	94	141	41	2,516	0.29	494.64	1,302
Santa Margarita WD	654	683	740	257	1,105	679	553	662	792	224	8,907	1.68	1,660.81	4,609
Seal Beach	47	46	57	7	81	51	31	29	38	12	582	0.10	113.15	301
Serrano WD	30	31	23	7	21	20	13	10	26	5	343	0.03	71.90	177
South Coast WD	107	130	148	43	183	112	89	79	68	25	1,522	0.18	297.39	788
Trabuco Canyon WD	69	60	62	28	82	62	30	45	47	19	755	0.14	146.53	391
Tustin	152	146	144	45	174	97	78	59	80	32	1,534	0.23	314.38	794
Westminster	213	171	233	74	329	208	121	82	109	30	2,383	0.20	480.73	1,233
Yorba Linda	288	350	367	117	394	273	181	167	156	64	3,637	0.47	750.09	1,882
MWDOC Totals	7,406	7,987	8,106	3,331	10,686	7,350	5,365	5,094	6,002	2,048	89,218	14.78	17,352.00	17,237
Anaheim	854	847	781	860	910	477	331	285	295	98	10,301	0.68	2,141.25	5,330
Fullerton	269	334	330	69	397	270	200	186	211	63	3,486	0.45	644.49	1,804
Santa Ana	236	235	257	87	355	190	163	131	132	35	2,606	0.25	570.33	1,348
Non-MWDOC Totals	1,359	1,416	1,368	1,016	1,662	937	694	602	638	196	16,393	1.37	3,356.08	3,167
Orange County Totals	8,765	9,403	9,474	4,347	12,348	8,287	6,059	5,696	6,640	2,244	105,611	16.15	20,708.07	20,404

SMART TIMERS INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 04/05		FY 05/06		FY 06/07		FY 07/08		FY 08/09		FY 09/10		FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		Total Program		Cumulative Water Savings across all Fiscal Years	
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.		
Brea	2	0	1	3	8	6	0	40	3	9	0	0	2	0	8	0	9	8	4	0	43	6	5	0	85	72	398.22	
Buena Park	0	0	0	0	0	0	0	0	3	1	0	0	0	4	19	3	0	0	0	4	10	0	0	14	30	85.75		
East Orange CWD RZ	1	0	2	0	0	0	0	0	0	0	0	1	0	5	0	2	0	0	0	2	0	0	0	13	0	3.55		
El Toro WD	1	0	8	0	4	95	1	174	0	25	2	18	5	5	26	2	7	2	11	0	8	9	4	0	77	330	1,976.03	
Fountain Valley	3	3	2	2	11	0	4	0	1	0	0	6	2	2	8	2	3	2	4	0	7	10	2	0	47	27	114.99	
Garden Grove	2	2	11	1	2	0	1	3	2	1	6	0	5	4	7	0	5	2	9	0	10	14	3	3	63	30	106.46	
Golden State WC	0	0	15	2	24	12	8	8	1	2	9	22	7	4	13	3	9	49	9	25	39	12	1	0	135	139	520.07	
Huntington Beach	5	2	21	9	12	12	7	1	13	1	6	27	6	36	15	4	18	33	20	35	19	2	11	0	153	162	665.38	
Irvine Ranch WD	2	2	68	111	160	434	66	183	29	56	14	145	28	153	267	71	414	135	71	59	67	310	9	0	1,195	1,659	7,923.73	
La Habra	0	0	0	0	7	1	1	0	0	0	0	21	0	0	3	0	4	7	2	0	4	7	57	43	78	79	171.24	
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	2	0	1	1	7	1	1.60	
Laguna Beach CWD	3	0	5	0	21	0	5	0	2	0	2	14	4	1	109	2	76	2	71	0	86	0	0	0	384	19	157.52	
Mesa Water	5	0	13	27	14	6	12	0	6	7	13	7	7	22	21	0	10	2	15	2	17	28	5	0	138	101	486.67	
Moulton Niguel WD	2	0	25	10	39	52	59	20	21	23	17	162	36	60	179	31	51	74	40	45	46	95	2	0	517	572	2,337.11	
Newport Beach	3	17	35	4	125	86	98	40	10	27	7	58	6	0	275	12	242	26	168	75	11	9	53	25	1,033	379	1,957.82	
Orange	8	4	37	13	28	38	4	0	5	2	2	13	5	8	25	0	20	24	13	9	18	31	4	0	169	142	667.97	
San Juan Capistrano	0	0	5	4	5	4	11	1	10	0	7	49	13	1	103	2	14	18	6	11	6	19	4	2	184	111	448.73	
San Clemente	4	0	483	1	46	7	21	60	81	20	13	209	46	11	212	17	26	7	28	2	28	24	16	6	1,004	364	2,056.38	
Santa Margarita WD	3	0	15	8	40	96	53	70	25	44	10	152	61	53	262	7	53	171	64	93	53	321	8	0	647	1,015	3,563.97	
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	1	1	31	1	2.10
Seal Beach	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	1	0	1	36	1	12	0	0	0	3	52	104.07	
Serrano WD	0	0	0	0	0	0	0	0	0	0	11	0	4	0	3	0	1	0	0	0	4	0	1	0	0	24	0	5.95
South Coast WD	2	0	6	1	17	29	7	49	11	6	3	10	13	3	78	10	13	16	8	4	104	73	4	0	266	201	828.89	
Trabuco Canyon WD	0	0	29	0	10	93	4	0	1	0	2	0	2	10	12	0	6	0	2	0	6	1	6	0	80	104	695.27	
Tustin	1	0	1	4	0	0	2	3	7	9	10	14	10	0	11	0	8	4	9	1	18	14	8	0	85	49	211.62	
Westminster	1	0	8	12	6	0	1	0	3	0	3	0	1	1	2	0	1	1	2	0	13	17	4	0	45	31	130.93	
Yorba Linda	0	0	30	6	31	5	20	41	8	5	5	21	25	0	22	0	20	0	12	5	32	2	15	1	220	86	529.19	
MWDOC Totals	48	30	820	218	610	976	385	693	242	238	142	949	289	374	1,671	185	1,017	583	571	402	648	1,026	254	82	6,697	5,756	26,151.20	
Anaheim	6	1	8	13	17	78	12	57	9	59	5	46	12	11	23	60	19	10	9	26	7	52	6	7	133	420	1,949.05	
Fullerton	0	0	2	0	10	0	10	0	2	2	2	39	9	33	22	51	9	29	8	0	40	26	5	6	119	186	641.99	
Santa Ana	0	0	0	0	1	0	3	0	2	4	1	8	8	0	6	5	8	19	7	8	9	27	10	1	55	72	190.50	
Non-MWDOC Totals	6	1	10	13	28	78	25	57	13	65	8	93	29	44	51	116	36	58	24	34	56	105	21	14	307	678	2,781.54	
Orange County Totals	54	31	830	231	638	1,054	410	750	255	303	150	1,042	318	418	1,722	301	1,053	641	595	436	704	1,131	275	96	7,004	6,434	28,933	

ROTATING NOZZLES INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 06/07			FY 07/08			FY 08/09			FY 10/11			FY 11/12			FY 12/13			FY 13/14			FY 14/15			FY 15/16			Total Program			Cumulative Water Savings across all Fiscal Years
	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	Small		Large	
	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	Res	Comm.	Comm.	
Brea	0	0	0	0	0	0	22	0	0	32	0	0	130	0	0	65	120	0	84	0	0	157	45	0	0	842	0	498	1,107	0	13.71
Buena Park	0	0	0	0	0	0	37	75	0	29	0	0	32	0	0	65	0	0	53	0	0	248	0	0	0	464	75	2,535	450.81		
East Orange	0	0	0	0	0	0	105	0	0	0	0	0	340	0	0	55	0	0	30	0	0	221	0	0	0	751	0	0	9.60		
El Toro	0	0	0	0	0	0	88	290	0	174	0	0	357	76	0	23	6,281	0	56	3,288	0	1,741	28,714	0	90	4,457	0	2,674	45,980	890	635.80
Fountain Valley	0	0	0	51	0	0	83	0	0	83	0	0	108	0	0	35	0	0	0	0	0	107	0	0	18	0	0	506	0	0	7.95
Garden Grove	0	0	0	44	0	0	153	106	0	38	0	0	119	0	0	95	0	0	80	0	0	88	50	0	44	0	0	812	201	0	17.16
Golden State	0	0	0	161	0	0	83	0	0	303	943	0	294	0	0	257	2,595	0	192	0	0	583	1,741	0	65	0	0	2,218	5,308	0	102.89
Huntington Beach	0	0	0	93	845	1,202	322	19	1,174	203	625	0	458	0	0	270	0	0	120	0	0	798	1,419	0	198	1,432	0	2,501	7,760	2,681	746.72
Irvine Ranch	0	0	0	610	7,435	440	1,594	5,108	85	2,411	2,861	0	1,715	4,255	0	25,018	1,014	0	11,010	4,257	0	1,421	632	0	171	1,110	0	44,984	81,113	2,004	2,656.37
La Habra	0	535	0	9	0	0	15	0	900	0	0	0	33	90	0	0	0	0	15	0	0	109	338	0	21	0	0	202	1,236	900	217.49
La Palma	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.24	
Laguna Beach	0	0	0	115	0	0	101	47	0	156	0	0	763	0	0	3,596	0	0	2,948	878	0	2,879	1,971	0	46	0	0	10,795	2,896	0	164.61
Mesa Water	83	0	0	0	25	343	198	0	0	118	0	0	297	277	0	270	0	0	361	0	0	229	0	0	77	0	0	1,828	385	343	117.26
Moulton Niguel	0	0	0	297	120	0	426	6,883	1,986	1,578	0	0	1,225	0	0	512	1,385	0	361	227	0	1,596	4,587	0	473	233	0	6,702	13,435	2,945	906.15
Newport Beach	0	0	0	22	569	0	65	170	0	337	1,208	0	640	3,273	0	25,365	50	0	19,349	6,835	0	460	3,857	0	250	0	0	46,580	20,743	0	947.31
Orange	0	0	0	158	0	0	961	163	0	135	30	0	343	0	0	264	0	0	245	120	0	304	668	0	271	0	0	2,810	981	0	58.18
San Clemente	0	0	0	118	0	0	466	25	0	2,612	851	0	4,266	117	1,343	631	172	0	415	5,074	0	326	0	0	279	0	0	9,842	7,538	1,343	387.00
San Juan Capistrano	0	0	0	70	0	0	434	1,660	0	1,452	0	0	949	0	0	684	30	0	370	0	0	495	737	0	15	0	0	5,125	8,136	0	239.81
Santa Margarita	0	0	0	165	0	0	1,079	68	0	3,959	3,566	0	4,817	0	0	983	0	0	389	0	0	1,207	1,513	0	711	107	0	15,041	6,191	611	415.93
Seal Beach	0	0	0	0	0	0	115	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	5,261	0	0	0	0	155	5,552	0	50.97
Serrano	0	0	0	94	0	0	24	0	0	364	0	0	58	0	0	190	0	0	105	0	0	377	0	0	291	0	0	3,001	0	0	48.15
South Coast	0	0	0	74	133	0	115	0	0	318	1,772	0	688	359	0	435	0	0	70	0	0	4,993	13,717	0	116	179	0	6,809	16,160	0	213.13
Trabuco Canyon	0	0	0	130	0	0	0	0	0	0	0	0	379	0	0	34	0	0	0	0	0	56	0	0	77	0	0	2,033	791	0	52.43
Tustin	0	0	0	23	0	0	549	0	0	512	0	0	476	1,013	0	378	0	0	329	0	0	408	0	0	120	45	0	3,109	1,058	0	60.05
Westminster	0	0	0	0	0	0	111	0	0	0	0	0	26	0	0	15	0	0	0	0	0	54	0	0	57	0	0	343	0	0	5.47
Yorba Linda	0	0	0	563	0	0	440	113	500	529	0	0	559	0	0	730	0	0	40	990	0	921	0	0	636	0	0	4,789	4,359	500	255.63
MWDOC Totals	83	535	0	2,797	9,127	1,985	7,596	14,727	4,645	15,343	11,856	0	19,072	9,460	1,343	59,970	11,647	0	36,622	21,669	0	19,818	65,250	0	4,026	8,405	0	174,582	231,005	14,752	8,780.80
Non-MWDOC Totals	0	0	0	308	0	0	871	120	0	841	382	0	1,173	38,619	0	677	813	0	531	2,533	0	1,492	1,908	0	412	5,221	0	6,674	50,332	1,589	939.71
Orange County Totals	83	535	0	3,105	9,127	1,985	8,467	14,847	4,645	16,184	12,238	0	20,245	48,079	1,343	60,647	12,460	0	37,153	24,202	0	21,310	67,158	0	4,438	13,626	0	181,256	281,337	16,341	9,720.51

SOCAL WATER\$MART COMMERCIAL PLUMBING FIXTURES REBATE PROGRAM^[1]
INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	Totals	Cumulative Water Savings across all Fiscal Years
Brea	27	113	24	4	1	234	0	10	53	593	346
Buena Park	153	432	122	379	290	5	23	56	94	1,859	908
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0
El Toro WD	0	92	143	1	137	0	212	6	1	760	512
Fountain Valley	17	35	0	2	314	0	0	1	0	623	517
Garden Grove	5	298	130	22	0	4	1	167	160	1,525	1,304
Golden State WC	46	414	55	68	135	0	1	0	182	1,986	1,685
Huntington Beach	48	104	126	96	156	104	144	7	451	1,981	1,368
Irvine Ranch WD	121	789	2,708	1,002	646	1,090	451	725	894	11,702	5,898
La Habra	191	75	53	4	0	0	0	0	109	652	478
La Palma	0	140	21	0	0	0	0	0	0	166	74
Laguna Beach CWD	20	137	189	0	0	0	27	0	0	446	281
Mesa Water	141	543	219	669	41	6	0	79	269	3,080	1,817
Moulton Niguel WD	9	69	151	6	0	0	0	3	0	583	722
Newport Beach	98	27	245	425	35	0	0	566	0	1,834	1,144
Orange	18	374	67	1	73	1	271	81	62	1,966	1,560
San Juan Capistrano	2	1	1	0	0	0	14	0	0	260	367
San Clemente	2	18	43	0	19	0	0	1	0	432	350
Santa Margarita WD	6	23	11	0	0	0	0	2	0	117	182
Santiago CWD	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	1	2	124	0	0	0	0	0	0	354	383
Serrano WD	0	0	0	0	0	0	0	0	0	0	0
South Coast WD	9	114	56	422	84	148	0	382	0	1,320	441
Trabuco Canyon WD	0	4	0	0	0	0	0	0	0	11	14
Tustin	115	145	25	230	0	0	0	75	0	832	720
Westminster	40	161	16	63	35	1	28	0	20	835	899
Yorba Linda	10	24	8	30	0	1	0	0	135	420	498
MWDOC Totals	1,079	4,134	4,537	3,424	1,966	1,594	1,172	2,161	2,430	34,337	22,466
Anaheim	766	3,298	582	64	48	165	342	463	959	11,331	6,099
Fullerton	133	579	29	4	0	94	0	178	55	1,736	1,427
Santa Ana	493	815	728	39	12	16	17	5	178	4,384	4,166
Non-MWDOC Totals	1,392	4,692	1,339	107	60	275	359	646	1,192	17,451	11,691
Orange County Totals	2,471	8,826	5,876	3,531	2,026	1,869	1,531	2,807	3,622	51,788	34,157

[1] Retrofit devices include ULF Toilets and Urinals, High Efficiency Toilets and Urinals, Multi-Family and Multi-Family 4-Liter HETs, Zero Water Urinals, High Efficiency Clothes Washers, Cooling Tower Conductivity Controllers, Ph Cooling Tower Conductivity Controllers, Flush Valve Retrofit Kits, Pre-rinse Spray heads, Hospital X-Ray Processor Recirculating Systems, Steam Sterilizers, Food Steamers, Water Pressurized Brooms, Laminar Flow Restrictors, and Ice Making Machines.

Water Smart Landscape Program
Total Number of Meters
in Program by Agency

Agency	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	Overall Water Savings To Date (AF)
Brea	0	0	0	0	0	0	0	22	22	22	22	22	62.80
Buena Park	0	0	0	0	0	17	103	101	101	101	101	101	455.49
East Orange CWD RZ	0	0	0	0	0	0	0	0	0	0	0	0	0.00
El Toro WD	88	109	227	352	384	371	820	810	812	812	812	812	4,798.99
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Garden Grove	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Golden State WC	0	0	0	14	34	32	34	32	32	32	32	32	198.31
Huntington Beach	0	0	0	0	0	31	33	31	31	31	31	31	146.22
Irvine Ranch WD	277	638	646	708	1,008	6,297	6,347	6,368	6,795	6,797	6,769	6,780	37,821.08
Laguna Beach CWD	0	0	0	0	57	141	143	141	124	124	124	124	724.23
La Habra	0	0	0	0	23	22	24	22	22	22	22	22	135.15
La Palma	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Mesa Water	191	170	138	165	286	285	288	450	504	511	514	515	2,906.82
Moulton Niguel WD	80	57	113	180	473	571	595	643	640	675	673	695	4,073.55
Newport Beach	32	27	23	58	142	171	191	226	262	300	300	300	1,479.78
Orange	0	0	0	0	0	0	0	0	0	0	0	0	0.00
San Clemente	191	165	204	227	233	247	271	269	269	299	407	438	2,336.02
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Santa Margarita WD	547	619	618	945	1,571	1,666	1,746	1,962	1,956	2,274	2,386	2,386	14,007.83
Seal Beach	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Serrano WD	0	0	0	0	0	0	0	0	0	0	0	0	0.00
South Coast WD	0	0	0	62	117	108	110	118	118	118	164	164	818.21
Trabuco Canyon WD	0	0	0	12	49	48	62	60	60	60	60	60	346.24
Tustin	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Westminster	0	0	0	10	18	18	20	18	18	18	18	18	115.17
Yorba Linda WD	0	0	0	0	0	0	0	0	0	0	0	0	0.00
MWDOC Totals	1,406	1,785	1,969	2,733	4,395	10,025	10,787	11,273	11,766	12,196	12,435	12,500	70,425.9
Anaheim	0	0	0	0	0	142	146	144	190	190	190	190	1,147.97
Fullerton	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	0	0	0	142	146	144	190	190	190	190	1,147.97
Orange Co. Totals	1,406	1,785	1,969	2,733	4,395	10,167	10,933	11,417	11,956	12,386	12,625	12,690	71,573.83

INDUSTRIAL PROCESS WATER USE REDUCTION PROGRAM

Number of Process Changes by Agency

Agency	FY 07/08	FY 08/09	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16	Overall Program Interventions	Annual Water Savings[1]	Cumulative Water Savings across all Fiscal Years[1]
Brea	0	0	0	0	0	0	0	0	0	0	0	0
Buena Park	0	1	0	0	0	0	0	0	0	1	54	365
East Orange	0	0	0	0	0	0	0	0	0	0	0	0
El Toro	0	0	0	0	0	0	0	0	0	0	0	0
Fountain Valley	0	0	0	0	0	0	0	0	0	0	0	0
Garden Grove	0	0	0	0	0	0	0	0	0	0	0	0
Golden State	1	0	0	0	0	0	0	0	0	1	3	22
Huntington Beach	0	0	0	0	0	2	0	1	0	3	127	234
Irvine Ranch	0	0	2	1	1	1	1	0	0	6	98	366
La Habra	0	0	0	0	0	0	0	0	0	0	0	0
La Palma	0	0	0	0	0	0	0	0	0	0	0	0
Laguna Beach	0	0	0	0	0	0	0	0	0	0	0	0
Mesa Water	0	0	0	0	0	0	0	0	0	0	0	0
Moulton Niguel	0	0	0	0	0	0	0	0	0	0	0	0
Newport Beach	0	0	0	0	0	0	0	1	0	1	21	18
Orange	1	0	0	0	0	0	0	0	0	1	43	330
San Juan Capistrano	0	0	0	0	0	0	0	0	0	0	0	0
San Clemente	0	0	0	0	0	0	0	0	0	0	0	0
Santa Margarita	0	0	0	0	0	0	0	0	0	0	0	0
Seal Beach	0	0	0	0	0	0	0	0	0	0	0	0
Serrano	0	0	0	0	0	0	0	0	0	0	0	0
South Coast	0	0	0	0	0	0	0	0	0	0	0	0
Trabuco Canyon	0	0	0	0	0	0	0	0	0	0	0	0
Tustin	0	0	0	0	0	0	0	0	0	0	0	0
Westminster	0	0	0	0	0	0	0	0	0	0	0	0
Yorba Linda	0	0	0	0	0	0	0	0	0	0	0	0
MWDOC Totals	2	1	2	1	1	3	1	2	0	13	346	1335
Anaheim	0	0	0	0	0	0	0	0	0	0	0	0
Fullerton	0	0	0	0	0	0	0	0	0	0	0	0
Santa Ana	0	0	0	0	0	0	0	0	1	1	11	23
OC Totals	2	1	2	1	1	3	1	2	1	14	357	1357

[1] Acre feet of savings determined during a one year monitoring period.

If monitoring data is not available, the savings estimated in agreement is used.

HIGH EFFICIENCY TOILETS (HETs) INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	FY05-06	FY 06-07	FY 07-08	FY 08-09	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	Total	Cumulative Water Savings across all Fiscal Years
Brea	0	2	7	43	48	8	0	0	38	146	115	407	56.69
Buena Park	0	1	2	124	176	7	0	0	96	153	75	634	126.10
East Orange CWD RZ	0	0	10	12	1	0	0	0	13	26	16	78	12.77
El Toro WD	0	392	18	75	38	18	0	133	218	869	159	1,920	346.39
Fountain Valley	0	69	21	262	54	17	0	0	41	132	144	740	169.64
Garden Grove	0	14	39	443	181	24	0	0	63	350	276	1,390	281.36
Golden State WC	2	16	36	444	716	37	80	2	142	794	385	2,654	514.92
Huntington Beach	2	13	59	607	159	76	0	0	163	1,190	455	2,724	443.98
Irvine Ranch WD	29	1,055	826	5,088	2,114	325	0	1,449	810	1,777	1,398	14,871	3,784.91
Laguna Beach CWD	0	2	17	91	28	11	0	0	45	112	42	348	66.56
La Habra	0	3	18	296	34	20	0	0	37	94	52	554	139.13
La Palma	0	1	10	36	26	13	0	0	21	59	34	200	36.73
Mesa Water	0	247	19	736	131	7	0	0	147	162	116	1,565	441.29
Moulton Niguel WD	0	20	104	447	188	46	0	0	400	2,497	1,455	5,157	593.83
Newport Beach	0	5	19	163	54	13	0	0	49	168	141	612	110.87
Orange	1	20	62	423	79	40	0	1	142	978	329	2,075	326.05
San Juan Capistrano	0	10	7	76	39	11	0	0	35	140	143	461	69.71
San Clemente	0	7	22	202	66	21	0	0	72	225	178	793	141.13
Santa Margarita WD	0	5	14	304	151	44	0	0	528	997	721	2,764	350.18
Seal Beach	0	678	8	21	12	1	0	2	17	50	45	834	311.28
Serrano WD	2	0	1	13	5	0	0	0	2	40	37	100	12.47
South Coast WD	2	2	29	102	41	12	23	64	102	398	175	950	133.04
Trabuco Canyon WD	0	0	4	23	23	0	0	0	10	108	107	275	31.24
Tustin	0	186	28	387	479	17	0	0	64	132	137	1,430	393.93
Westminster	0	17	25	541	167	23	0	0	35	161	287	1,256	287.02
Yorba Linda WD	0	14	89	323	96	18	0	0	40	280	278	1,138	223.99
MWDOC Totals	38	2,779	1,494	11,282	5,106	809	103	1,651	3,330	12,038	7,300	45,930	9,405.17
 	 	 	 	 	 	 	 	 	 	 	 	 	
Anaheim	0	255	78	2,771	619	114	0	0	156	1,188	400	5,581	1,433.43
Fullerton	0	4	28	286	60	23	0	0	61	293	193	948	174.49
Santa Ana	0	11	25	925	89	23	0	0	33	602	209	1,917	425.93
Non-MWDOC Totals	0	270	131	3,982	768	160	0	0	250	2,083	802	8,446	2,033.86
 	 	 	 	 	 	 	 	 	 	 	 	 	
Orange County Totals	38	3,049	1,625	15,264	5,874	969	103	1,651	3,580	14,121	8,102	54,376	11,439.03

TURF REMOVAL BY AGENCY^[1]
through MWDOC and Local Agency Conservation Programs

Agency	FY 10/11		FY 11/12		FY 12/13		FY 13/14		FY 14/15		FY 15/16		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	3,397	9,466	7,605	0	5,697	0	71,981	30,617	12,421	0	101,101	40,083	46.12
Buena Park	0	0	0	0	0	0	0	0	11,670	1,626	5,827	0	17,497	1,626	4.54
East Orange	0	0	0	0	0	0	1,964	0	18,312	0	6,921	0	27,197	0	6.92
El Toro	0	0	4,723	0	4,680	72,718	4,582	0	27,046	221,612	15,277	86,846	56,308	381,176	132.49
Fountain Valley	0	0	1,300	0	682	7,524	4,252	0	45,583	5,279	5,869	0	57,686	12,803	22.35
Garden Grove	0	46,177	14,013	0	4,534	0	8,274	0	67,701	22,000	13,443	0	107,965	68,177	81.61
Golden State	0	0	42,593	30,973	31,813	3,200	32,725	8,424	164,507	190,738	29,919	0	301,557	233,335	192.04
Huntington Beach	801	3,651	27,630	48,838	9,219	12,437	20,642	0	165,600	58,942	54,016	7,426	277,908	131,294	149.53
Irvine Ranch	5,423	12,794	6,450	1,666	32,884	32,384	36,584	76,400	234,905	317,999	70,450	1,174,609	386,696	1,615,852	434.10
La Habra	0	7,775	0	8,262	0	0	0	0	14,014	1,818	6,127	2,936	20,141	20,791	18.02
La Palma	0	0	0	0	0	0	0	0	4,884	0	500	57,400	5,384	57,400	9.47
Laguna Beach	978	0	2,533	0	2,664	1,712	4,586	226	13,647	46,850	2,693	0	27,101	48,788	24.38
Mesa Water	0	0	6,777	0	10,667	0	22,246	0	131,675	33,620	18,947	0	190,312	33,620	68.99
Moulton Niguel	956	16,139	4,483	26,927	11,538	84,123	14,739	40,741	314,250	1,612,845	80,041	127,043	426,007	1,907,818	681.78
Newport Beach	0	0	3,454	0	3,548	2,346	894	0	33,995	65,277	1,064	55,287	42,955	122,910	41.78
Orange	0	0	12,971	0	15,951	8,723	11,244	0	120,093	281,402	19,781	0	180,040	290,125	142.80
San Clemente	0	0	21,502	0	16,062	13,165	18,471	13,908	90,349	1,137	18,718	392,742	165,102	420,952	128.24
San Juan Capistrano	0	0	22,656	103,692	29,544	27,156	12,106	0	101,195	32,366	13,778	19,598	179,279	182,812	167.35
Santa Margarita	4,483	5,561	1,964	11,400	10,151	11,600	17,778	48,180	211,198	514,198	104,454	178,666	350,028	769,605	300.42
Seal Beach	0	0	0	0	3,611	0	0	0	15,178	504	2,159	0	20,948	504	6.72
Serrano	0	0	0	0	0	0	2,971	0	41,247	0	32,545	0	76,763	0	17.35
South Coast	0	16,324	6,806	0	9,429	4,395	15,162	116,719	84,282	191,853	46,342	0	162,021	329,291	165.41
Trabuco Canyon	0	0	272	0	1,542	22,440	2,651	0	14,771	0	5,436	66,964	24,672	89,404	29.00
Tustin	0	0	0	0	9,980	0	1,410	0	71,285	14,137	13,567	1,700	96,242	15,837	32.24
Westminster	0	0	0	0	0	0	0	0	14,040	34,631	11,354	0	25,394	34,631	15.22
Yorba Linda	11,349	0	0	0	0	0	0	0	112,136	12,702	51,470	54,587	174,955	67,289	59.33
MWDOC Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	304,598	2,195,544	3,692,153	643,119	2,225,804	3,501,259	6,876,123	2,978.20

Anaheim	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Fullerton	0	0	0	0	0	0	0	9,214	0	0	0	0	0	9,214	3.87
Santa Ana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
Non-MWDOC Totals	0	9,214	0	0	0	0	0	9,214	3.87						

Orange County Totals	23,990	108,421	183,524	241,224	216,104	303,923	238,978	313,812	2,195,544	3,692,153	643,119	2,225,804	3,501,259	6,885,337	2,982
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[1] Installed device numbers are listed as square feet

HOME WATER SURVEYS PERFORMED BY AGENCY

through MWDOC and Local Agency Conservation Programs

Agency	FY 13/14		FY 14/15		FY 15/16		Total		Cumulative Water Savings
	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	Surveys	Cert Homes	
Brea	1	0	2	0	0	0	3	0	0.16
Buena Park	0	0	1	0	0	0	1	0	0.05
East Orange	19	0	1	0	0	0	20	0	1.39
El Toro	0	0	3	0	0	0	3	0	0.14
Fountain Valley	3	0	4	0	0	0	7	0	0.40
Garden Grove	0	0	6	0	1	0	7	0	0.31
Golden State	0	0	0	0	0	0	0	0	0.00
Huntington Beach	2	0	5	0	2	0	9	0	0.42
Irvine Ranch	1	0	3	0	5	0	9	0	0.33
La Habra	0	0	1	0	0	0	1	0	0.05
La Palma	0	0	0	0	0	0	0	0	0.00
Laguna Beach	4	0	8	0	1	0	13	0	0.68
Mesa Water	0	0	0	0	0	0	0	0	0.00
Moulton Niguel	4	0	4	0	0	0	8	0	0.47
Newport Beach	2	0	8	0	3	0	13	0	0.59
Orange	2	0	18	0	1	0	21	0	1.01
San Clemente	15	0	13	0	0	0	28	0	1.67
San Juan Capistrano	4	0	13	0	2	0	19	0	0.94
Santa Margarita	15	0	40	1	12	0	67	1	3.22
Seal Beach	0	0	1	0	1	0	2	0	0.07
Serrano	0	0	2	0	0	0	2	0	0.09
South Coast	6	0	4	0	1	0	11	0	0.64
Trabuco Canyon	0	0	4	0	0	0	4	0	0.19
Tustin	0	0	10	0	4	0	14	0	0.56
Westminster	0	0	0	0	0	0	0	0	0.00
Yorba Linda	0	0	13	0	8	0	21	0	0.80
MWDOC Totals	78	0	164	1	41	0	283	1	14.18

Anaheim	0	0	0	0	0	0	0	0	0.00
Fullerton	0	0	17	0	1	0	18	0	0.82
Santa Ana	0	0	0	0	0	0	0	0	0.00
Non-MWDOC Totals	0	0	17	0	1	0	18	0	0.82

Orange County Totals	78	0	181	1	42	0	301	1	15.007
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SYNTHETIC TURF INSTALLED BY AGENCY^[1]
through MWDOC and Local Agency Conservation Programs

Agency	FY 07/08		FY 08/09		FY 09/10		FY 10/11		Total Program		Cumulative Water Savings across all Fiscal Years
	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	Res	Comm.	
Brea	0	0	2,153	2,160	500	0	0	0	2,653	2,160	3.30
Buena Park	0	0	1,566	5,850	0	0	0	0	1,566	5,850	5.19
East Orange	0	0	0	0	983	0	0	0	983	0	0.55
El Toro	3,183	0	2,974	0	3,308	0	895	0	10,360	0	6.98
Fountain Valley	11,674	0	1,163	0	2,767	0	684	0	16,288	0	12.46
Garden Grove	1,860	0	0	0	3,197	0	274	0	5,331	0	3.47
Golden State	6,786	0	13,990	0	15,215	0	2,056	0	38,047	0	24.88
Huntington Beach	15,192	591	12,512	0	4,343	1,504	0	0	32,047	2,095	25.29
Irvine Ranch	11,009	876	13,669	0	2,585	0	0	0	27,263	876	21.00
La Habra	0	0	0	0	0	0	0	0	0	0	-
La Palma	429	0	0	0	0	0	0	0	429	0	0.36
Laguna Beach	3,950	0	3,026	0	725	0	0	0	7,701	0	5.84
Mesa Water	4,114	0	3,005	78,118	4,106	0	2,198	0	13,423	78,118	63.46
Moulton Niguel	14,151	0	25,635	2,420	7,432	0	0	0	47,218	2,420	35.69
Newport Beach	2,530	0	6,628	0	270	0	0	0	9,428	0	6.92
Orange	4,169	0	7,191	0	635	0	0	0	11,995	0	8.89
San Clemente	9,328	0	11,250	455	2,514	1,285	500	0	23,592	1,740	18.37
San Juan Capistrano	0	0	7,297	639	2,730	0	4,607	0	14,634	639	9.02
Santa Margarita	12,922	0	26,069	0	21,875	0	7,926	0	68,792	0	44.68
Seal Beach	0	0	817	0	0	0	0	0	817	0	0.57
Serrano	7,347	0	1,145	0	0	0	0	0	8,492	0	6.97
South Coast	2,311	0	6,316	0	17,200	0	1,044	0	26,871	0	16.43
Trabuco Canyon	1,202	0	9,827	0	0	0	0	0	11,029	0	7.89
Tustin	6,123	0	4,717	0	2,190	0	0	0	13,030	0	9.67
Westminster	2,748	16,566	8,215	0	890	0	0	0	11,853	16,566	22.47
Yorba Linda	11,792	0	12,683	0	4,341	5,835	0	0	28,816	5,835	24.48
MWDOC Totals	132,820	18,033	181,848	89,642	97,806	8,624	20,184	0	432,658	116,299	384.83

Anaheim	4,535	0	7,735	20,093	13,555	65,300	4,122	0	29,947	85,393	69.18
Fullerton	4,865	876	5,727	0	6,223	0	105	0	16,920	876	12.36
Santa Ana	0	0	2,820	0	525	0	0	0	3,345	0	2.27
Non-MWDOC Totals	9,400	876	16,282	20,093	20,303	65,300	4,227	0	50,212	86,269	83.81

Orange County Totals	142,220	18,909	198,130	109,735	118,109	73,924	24,411	0	482,870	202,568	468.63
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[1] Installed device numbers are calculated in square feet

ULF TOILETS INSTALLED BY AGENCY
through MWDOC and Local Agency Conservation Programs

Agency	Previous Years	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02	FY 02-03	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	FY 08-09	Total	Cumulative Water Savings across all Fiscal Years
Brea	378	189	299	299	122	144	867	585	341	401	26	48	17	4	0	3,720	1,692.64
Buena Park	361	147	331	802	520	469	524	1,229	2,325	1,522	50	40	18	9	0	8,347	3,498.37
East Orange CWD RZ	2	0	33	63	15	17	15	50	41	44	19	18	13	2	0	332	138.23
El Toro WD	1,169	511	678	889	711	171	310	564	472	324	176	205	61	40	0	6,281	3,091.16
Fountain Valley	638	454	635	858	1,289	2,355	1,697	1,406	1,400	802	176	111	58	32	0	11,911	5,383.10
Garden Grove	1,563	1,871	1,956	2,620	2,801	3,556	2,423	3,855	3,148	2,117	176	106	67	39	0	26,298	12,155.41
Golden State WC	3,535	1,396	3,141	1,113	3,024	2,957	1,379	2,143	3,222	1,870	167	116	501	43	0	24,607	11,731.47
Huntington Beach	3,963	1,779	2,600	2,522	2,319	3,492	3,281	2,698	3,752	1,901	367	308	143	121	0	29,246	13,854.70
Irvine Ranch WD	4,016	841	1,674	1,726	1,089	3,256	1,534	1,902	2,263	6,741	593	626	310	129	0	26,700	11,849.23
Laguna Beach CWD	283	93	118	74	149	306	220	85	271	118	32	26	29	6	0	1,810	845.69
La Habra	594	146	254	775	703	105	582	645	1,697	1,225	12	31	6	7	0	6,782	2,957.73
La Palma	65	180	222	125	44	132	518	173	343	193	31	27	20	17	0	2,090	927.52
Mesa Water	1,610	851	1,052	2,046	2,114	1,956	1,393	1,505	2,387	988	192	124	56	14	0	16,288	7,654.27
Moulton Niguel WD	744	309	761	698	523	475	716	891	728	684	410	381	187	100	0	7,607	3,371.14
Newport Beach	369	293	390	571	912	1,223	438	463	396	1,883	153	76	36	16	0	7,219	3,166.77
Orange	683	1,252	1,155	1,355	533	2,263	1,778	2,444	2,682	1,899	193	218	88	53	4	16,600	7,347.93
San Juan Capistrano	1,234	284	193	168	323	1,319	347	152	201	151	85	125	42	39	0	4,663	2,324.42
San Clemente	225	113	191	65	158	198	667	483	201	547	91	66	37	34	0	3,076	1,314.64
Santa Margarita WD	577	324	553	843	345	456	1,258	790	664	260	179	143	101	29	0	6,522	3,001.01
Seal Beach	74	66	312	609	47	155	132	81	134	729	29	10	6	12	0	2,396	1,073.80
Serrano WD	81	56	68	41	19	52	95	73	123	98	20	15	14	2	0	757	338.66
South Coast WD	110	176	177	114	182	181	133	358	191	469	88	72	32	22	0	2,305	990.05
Trabuco Canyon WD	10	78	42	42	25	21	40	181	102	30	17	20	12	14	0	634	273.02
Tustin	968	668	557	824	429	1,292	1,508	1,206	1,096	827	69	89	26	12	0	9,571	4,423.88
Westminster	747	493	969	1,066	2,336	2,291	2,304	1,523	2,492	1,118	145	105	70	24	0	15,683	7,064.28
Yorba Linda WD	257	309	417	457	404	1,400	759	1,690	1,155	627	158	136	81	41	0	7,891	3,409.49
MWDOC Totals	24,256	12,879	18,778	20,765	21,136	30,242	24,918	27,175	31,827	27,568	3,654	3,242	2,031	861	4	249,336	113,878.61

Anaheim	447	1,054	1,788	3,661	1,755	7,551	4,593	6,346	9,707	5,075	473	371	462	341	1	43,625	18,359.52
Fullerton	1,453	1,143	694	1,193	1,364	2,138	1,926	2,130	2,213	1,749	172	77	44	23	2	16,321	7,435.23
Santa Ana	1,111	1,964	1,205	2,729	2,088	8,788	5,614	10,822	10,716	9,164	279	134	25	5	0	54,644	22,887.95
Non-MWDOC Totals	3,011	4,161	3,687	7,583	5,207	18,477	12,133	19,298	22,636	15,988	924	582	531	369	3	114,590	48,682.70

Orange County Totals	27,267	17,040	22,465	28,348	26,343	48,719	37,051	46,473	54,463	43,556	4,578	3,824	2,562	1,230	7	363,926	162,561.30
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APPENDIX J

CUWCC BMP Report





CUWCC BMP Retail Coverage Report 2014

Foundational Best Management Practices for Urban Water Efficiency

BMP 1.1 Operation Practices

ON TRACK

86 City of San Juan Capistrano

1. Conservation Coordinator provided with necessary resources to implement BMPs?

Name:

Title:

Email:

2. Water Waste Prevention Documents

WW Document Name	WWP File Name	WW Prevention URL	WW Prevention Ordinance Terms Description
Option A Describe the ordinances or terms of service adopted by your agency to meet the water waste prevention requirements of this BMP.			
Option B Describe any water waste prevention ordinances or requirements adopted by your local jurisdiction or regulatory agencies within your service area.			
Option C Describe any documentation of support for legislation or regulations that prohibit water waste.			
Option D Describe your agency efforts to cooperate with other entities in the adoption or enforcement of local requirements consistent with this BMP.			
Option E Describe your agency support positions with respect to adoption of legislation or regulations that are consistent with this BMP.			
Option F Describe your agency efforts to support local ordinances that establish permits requirements for water efficient design in new development.			

At Least As effective As

Exemption

Comments:



CUWCC BMP Retail Coverage Report 2014
Foundational Best Management Practices for Urban Water Efficiency

BMP 1.1 Operation Practices

ON TRACK



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.2 Water Loss Control

ON TRACK

86 City of San Juan Capistrano

Completed Standard Water Audit Using AWWA Software?	Yes
AWWA File provided to CUWCC?	Yes
2014_AWWA-Audit v5-(SanJuanCapistrano) (2).xls	
AWWA Water Audit Validity Score?	62
Complete Training in AWWA Audit Method	Yes
Complete Training in Component Analysis Process?	Yes
Component Analysis?	Yes
Repaired all leaks and breaks to the extent cost effective?	Yes
Locate and Repair unreported leaks to the extent cost effective?	Yes
Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.	Yes

Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
81	23843	0	0	False	0	0

At Least As effective As

No

Exemption

No

Comments:



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.3 Metering With Commodity

ON TRACK

86 City of San Juan Capistrano

Numbered Unmetered Accounts	No
Metered Accounts billed by volume of use	Yes
Number of CII Accounts with Mixed Use Meters	299
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	Yes
Feasibility Study provided to CUWCC?	Yes
Date:	1/9/2009
Uploaded file name:	
Completed a written plan, policy or program to test, repair and replace meters	Yes
At Least As effective As	<input type="text" value="No"/>
Exemption	<input type="text" value="No"/>
Comments:	



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.4 Retail Conservation Pricing

On Track

86 City of San Juan Capistrano

Implementation (Water Rate Structure)

Customer Class	Water Rate Type	Conserving Rate?	(V) Total Revenue Comodity Charges	(M) Total Revenue Fixed Carges
Single-Family	Increasing Block	Yes	7679323	
Multi-Family	Increasing Block	Yes	2183066	
Commercial	Increasing Block	Yes	1428695	
Dedicated Irrigation	Increasing Block	Yes	2720379	
Agricultural	Increasing Block	Yes	191422	
Fire Lines	Increasing Block	Yes	0	0
			14202885	0

Calculate: $V / (V + M)$ 100 %

Implementation Option: Use Annual Revenue As Reported

Use 3 years average instead of most recent year

Canadian Water and Wastewater Association

Upload file:

Agency Provide Sewer Service: Yes

At Least As effective As

Exemption

Comments:



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.1 Public Outreach

ON TRACK

86

City of San Juan Capistrano

Retail

Does your agency perform Public Outreach programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Municipal Water District of Orange County	
City of San Juan Capistrano, Noreen Swiontek, nswiontek@sanjuancapistrano.org	
Agency Name	ID number
Municipal Water District of Orange County	168

The name of agency, contact name and email address if not CUWCC Group 1 members

Did at least one contact take place during each quarter of the reporting year? Yes

Did at least one contact take place during each quarter of the reporting year? Yes

Number Media Contacts	Number
Articles or stories resulting from outreach	1
Articles or stories resulting from outreach	
Total	1

Did at least one website update take place during each quarter of the reporting year? Yes

Public Information Program Annual Budget

Public Outreach Additional Programs
School outreach

Description of all other Public Outreach programs

Comments:

At Least As effective As

Exemption



CUWCC BMP Coverage Report 2014

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.2 School Education Programs

ON TRACK

86 City of San Juan Capistrano

Retail

Does your agency implement School Education programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Municipal Water District of Orange County

City of San Juan Capistrano, Noreen Swiontek, nswiontek@sanjuancapistrano.org

Agencies Name	ID number
Municipal Water District of Orange County	168

Materials meet state education framework requirements? Yes

Materials distributed to K-6? Yes

Materials distributed to 7-12 students? Yes (Info Only)

Annual budget for school education program: 5112.00

Description of all other water supplier education programs

Comments:

At Least As effective As No

Exemption No 0



CUWCC BMP Coverage Report 2014

86 City of San Juan Capistrano

Baseline GPCD: 222.38

GPCD in 2014 203.18

GPCD Target for 2018: 182.40

ON TRACK

Biennial GPCD Compliance Table

Year	Report	Highest Acceptable Bound	
		% Base	GPCD
2010	1	100%	222.40
2012	2	96.4%	214.40
2014	3	92.8%	206.40
2016	4	89.2%	198.40
2018	5	82.0%	182.40



CUWCC BMP Retail Coverage Report 2013

Foundational Best Management Practices for Urban Water Efficiency

BMP 1.1 Operation Practices

ON TRACK

86 City of San Juan Capistrano

1. Conservation Coordinator provided with necessary resources to implement BMPs?

Name:

Title:

Email:

2. Water Waste Prevention Documents

WW Document Name	WWP File Name	WW Prevention URL	WW Prevention Ordinance Terms Description
Option A Describe the ordinances or terms of service adopted by your agency to meet the water waste prevention requirements of this BMP.			
Option B Describe any water waste prevention ordinances or requirements adopted by your local jurisdiction or regulatory agencies within your service area.			
Option C Describe any documentation of support for legislation or regulations that prohibit water waste.			
Option D Describe your agency efforts to cooperate with other entities in the adoption or enforcement of local requirements consistent with this BMP.			
Option E Describe your agency support positions with respect to adoption of legislation or regulations that are consistent with this BMP.			
Option F Describe your agency efforts to support local ordinances that establish permits requirements for water efficient design in new development.			

At Least As effective As

Exemption

Comments:



CUWCC BMP Retail Coverage Report 2013
Foundational Best Management Practices for Urban Water Efficiency

BMP 1.1 Operation Practices

ON TRACK



CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.2 Water Loss Control

ON TRACK

86 City of San Juan Capistrano

Completed Standard Water Audit Using AWWA Software? Yes

AWWA File provided to CUWCC? No

AWWA Water Audit Validity Score? 62

Complete Training in AWWA Audit Method Yes

Complete Training in Component Analysis Process? Yes

Component Analysis? Yes

Repaired all leaks and breaks to the extent cost effective? Yes

Locate and Repair unreported leaks to the extent cost effective? Yes

Maintain a record keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair. Yes

Provided 7 Types of Water Loss Control Info

Leaks Repairs	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost Of Interventions	Water Saved (AF)
	68000			False		

At Least As effective As

Exemption

Comments:



CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.3 Metering With Commodity

ON TRACK

86 City of San Juan Capistrano

Numbered Unmetered Accounts	No
Metered Accounts billed by volume of use	Yes
Number of CII Accounts with Mixed Use Meters	299
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	Yes
Feasibility Study provided to CUWCC?	Yes
Date:	1/9/2009
Uploaded file name:	
Completed a written plan, policy or program to test, repair and replace meters	Yes
At Least As effective As	<input type="text" value="No"/>
Exemption	<input type="text" value="No"/>
Comments:	



CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 1.4 Retail Conservation Pricing

On Track

86 City of San Juan Capistrano

Implementation (Water Rate Structure)

Customer Class	Water Rate Type	Conserving Rate?	(V) Total Revenue Comodity Charges	(M) Total Revenue Fixed Carges
Single-Family	Increasing Block	Yes	6912857	
Multi-Family	Increasing Block	Yes	2098776	
Commercial	Increasing Block	Yes	1375933	
Industrial	Increasing Block	Yes	0	
Institutional	Increasing Block	Yes	1079817	
Dedicated Irrigation	Increasing Block	Yes	2110723	
Other	Increasing Block	Yes	369687	
			13947793	

Calculate: $V / (V + M)$ 100 %

Implementation Option: Use Annual Revenue As Reported

Use 3 years average instead of most recent year

Canadian Water and Wastewater Association

Upload file:

Agency Provide Sewer Service: Yes

Customer Class	Rate Type	Conserving Rate?
Single-Family	Increasing Block	Yes

At Least As effective As

Exemption

Comments:



CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.1 Public Outreach

ON TRACK

86

City of San Juan Capistrano

Retail

Does your agency perform Public Outreach programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Municipal Water District of Orange County	
City of San Juan Capistrano, Noreen Swiontek, nswiontek@sanjuancapistrano.org	
Agency Name	ID number
Municipal Water District of Orange County	168

The name of agency, contact name and email address if not CUWCC Group 1 members

Did at least one contact take place during each quarter of the reporting year? Yes

Did at least one contact take place during each quarter of the reporting year? Yes

Number Media Contacts	Number
Articles or stories resulting from outreach	
Total	

Did at least one website update take place during each quarter of the reporting year? Yes

Public Information Program Annual Budget

Description of all other Public Outreach programs

Comments:

At Least As effective As

Exemption



CUWCC BMP Coverage Report 2013

Foundational Best Management Practices For Urban Water Efficiency

BMP 2.2 School Education Programs

ON TRACK

86 City of San Juan Capistrano

Retail

Does your agency implement School Education programs? Yes

The list of wholesale agencies performing public outreach which can be counted to help the agency comply with the BMP

Municipal Water District of Orange County

City of San Juan Capistrano, Noreen Swiontek, nswiontek@sanjuancapistrano.org

Agencies Name	ID number
Municipal Water District of Orange County	168

Materials meet state education framework requirements? Yes

Materials distributed to K-6? Yes

Materials distributed to 7-12 students? Yes (Info Only)

Annual budget for school education program: 5112.00

Description of all other water supplier education programs

Comments:

At Least As effective As No

Exemption No 0

Arcadis U.S., Inc.

445 South Figueroa Street

Suite 3650

Los Angeles, California 90071

Tel 213 486 9884

Fax 213 486 9894

www.arcadis.com

A decorative graphic consisting of three thin orange lines: one horizontal line extending across the width of the page, and two parallel diagonal lines extending from the bottom left towards the top right.