



Moulton Niguel Water District

Final

2010 Urban Water Management Plan

June 2011



The Water Division of ARCADIS

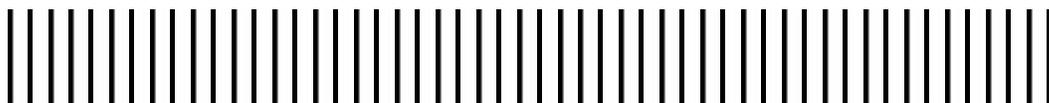


Moulton Niguel Water District

27500 La Paz Road • Laguna Niguel, CA 92677

2010 Urban Water Management Plan

June 2011



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Acronyms Used in the Report

20x2020	20% water use reduction in GPCD by year 2020
Act	Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
AMP	Allen-McColloch Pipeline
ASL	above main sea level
AWT	Advanced Wastewater Treatment Plant
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
CALFED	CALFED Bay-Delta Program
CDR	Center for Demographic Research
cfs	cubic feet per second
CII	Commercial/Industrial/Institutional
CIMIS	California Irrigation Management Information System
COG	Council of Governments
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measure
DWR	Department of Water Resources
EIR	Environmental Impact Report
EOCF #2	East Orange County Feeder #2
ETM	Eastern Transmission Main
ETo	Evapotranspiration
ETWD	El Toro Water District
FY	Fiscal Year
FYE	Fiscal Year Ending
GMFP	Groundwater Management and Facility Plan
GPCD	gallons per capita per day
gpm	gallons per minute
GWRP	Groundwater Recovery Project
HECW	High Efficiency Clothes Washer
HET	high efficiency toilet
IRP	Integrated Water Resources Plan
IRWD	Irvine Ranch Water District
IWA	International Water Association
JPA	Joint Powers Authority
JRTP	Joint Regional Wastewater Treatment Plant
JRWS	Joint Regional Water Supply System
JTM	Joint Transmission Main

LOI	Letter of Intent
LPCP	Landscape Performance Certification Program
Metropolitan	Metropolitan Water District of Southern California
MF	Microfiltration
MG	million gallons
MGD	million gallons per day
MNWD	Moulton Niguel Water District
MOU	Memorandum of Understanding
MWDOC	Municipal Water District of Orange County
NDMA	N-nitrosodimethylamine
NOAA	National Oceanic and Atmospheric Administration
Poseidon	Poseidon Resources LLC
PPCP	Pharmaceuticals and Personal Care Product
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
RO	Reverse Osmosis
RUWMP	Regional Urban Water Management Plan
SBx7-7	Senate Bill 7 as part of the Seventh Extraordinary Session
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCP	South County Pipeline
SCWD	South Coast Water District
SDCWA	San Diego County Water Authority
SJBA	San Juan Basin Authority
SMWD	Santa Margarita Water District
SOCWA	South Orange County Wastewater Authority
SWP	State Water Project
TCWD	Trabuco Canyon Water District
TDS	Total Dissolved Solids
ULFT	ultra-low-flush toilet
UWMP	Urban Water Management Plan
WEROC	Water Emergency Response Organization of Orange County
WOCWBF #2	West Orange County Water Board Feeder #2
WRP	Water Recycling Plant
WSAP	Water Supply Allocation Plan
WSDM	Water Surplus and Drought Management Plan

Executive Summary

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

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. The Delta package is a legislative plan comprising four policy bills which establishes a Delta Stewardship Council, sets an ambitious water conservation policy, ensures better groundwater monitoring, and provides funds for the State Water Resources Control Board for increased enforcement of illegal water diversions. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015.

Service Area and Facilities

MNWD provides water to a population of 172,068 throughout its 36.5 square mile service area. MNWD's main source of water is imported from the Municipal Water District of Orange County (MWDOC) along with recycled water developed at local treatment facilities. Imported water is treated at the Diemer Filtration Plant and is delivered to MNWD through two imported water pipelines.

Water Demand

Currently, the total water demand for retail customers served by MNWD is approximately 33,846 acre-feet annually consisting of 26,726 acre-feet (79%) of potable water and 7,120 acre-feet (21%) of recycled water.

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

Orange County. Under Compliance Option 1, MNWD's 2015 interim water use target is 193.3 GPCD and the 2020 final water use target is **171.8 GPCD**.

Water Sources and Supply Reliability

All of MNWD's potable water supply is imported water from Metropolitan through MWDOC. Today, MNWD relies on 79% imported water and 21% recycled water. It is projected that recycled water will increase to 23% by 2035. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet full service demands of its member agencies with existing supplies from 2015 through 2035 during normal years, single dry year, and multiple dry years. MNWD is therefore capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035, as illustrated in Table 3-10, Table 3-11, and Table 3-12, respectively.

Future Water Supply Projects

MNWD is working with neighboring agencies to continue development of a permanent interconnection and pumping facilities between the agencies IRWD potable water distribution systems. The interconnection will allow up to 30 cfs of water from IRWD to the South County agencies via the Joint Transmission Main (JTM) and the Aufdenkamp Transmission Main (ATM).

SMWD is constructing the Upper Chiquita Reservoir with a capacity of 244 MG (750 AF), near Oso Parkway and the 241 Toll Road. MNWD will have a maximum capacity of 83 MG (256 AF). The reservoir is anticipated to be completed in summer 2011.

The Baker Pipeline Regional Water Treatment Plant will be a new 25 MGD plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Plant is currently in design and is scheduled to begin construction in late 2011 and expected to come online in FY 2012-13. MNWD has a capacity right of 9,400 AFY (8.4 MGD).

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC, including two that specifically may benefit MNWD. These are the Huntington Beach Seawater Desalination Project, and the South Orange Coastal Desalination Project.

On August 21, 2009, MNWD signed a non-binding LOI for 4.5 MGD (5,000 AFY) of Huntington Beach Seawater Desalination Project supplies. MNWD is also working jointly with MWDOC and four other South County water agencies along with Metropolitan on the South Orange Coastal Desalination Project. Currently, MNWD is a 20% participant in the project with a preliminary water supply of 3 MGD.

1. Introduction

1.1. Urban Water Management Plan Requirements

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

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

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

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the historic Delta package. The Delta package is a legislative plan comprising four policy bills which establishes a Delta Stewardship Council, sets an ambitious water conservation policy, ensures better groundwater monitoring, and provides funds for the State Water Resources Control Board for increased enforcement of illegal water diversions. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. Each urban

retail water supplier must include in its 2010 UWMPs the following information from its target-setting process:

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

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

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

The sections in this Plan correspond to the outline of the Act, specifically Article 2, Contents of Plans, Sections 10631, 10632, 10633, 10634 and 10635. The sequence used for the required information, however, differs slightly in order to present information in a manner reflecting the unique characteristics of MNWD's water utility. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.



Figure 1-1: Regional Location of Urban Water Supplier

1.2. Agency Overview

MNWD was formed in November 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000. It is situated in Orange County, approximately 60 miles south of Los Angeles and provides domestic and non-domestic water service to residential, commercial and industrial customers within the cities of Mission Viejo, Aliso Viejo, Laguna Niguel, Laguna Hills, San Juan Capistrano and Dana Point.

MNWD was originally created by ranchers in Rancho Niguel and Rancho Mission Viejo seeking a reliable water supply to maintain their herds. At its inception, MNWD served only eight customers. But as ranch land quickly began transforming into ranch homes, local population increased rapidly and water demands dramatically changed. To serve the growing population within its service area, MNWD expanded its operations to provide wastewater treatment. In 1974, MNWD became one of the first water providers in Orange County to deliver recycled water for irrigation uses.

MNWD is governed by a publicly elected seven person Board of Directors. The current members of the Board of Directors are:

- Richard S. Fiore, Division 1
- Scott F. Colton, Division 2
- Donald Froelich, Vice President, Division 3
- Larry R. Lizotte, Division 4
- Brian S. Probolsky, Vice President, Division 5
- Larry McKenney, President, Division 6
- Gary R. Kurtz, Division 7

MNWD's main source of water is imported water from the Municipal Water District of Orange County (MWDOC). MWDOC is Orange County's wholesale supplier and is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

1.3. Service Area and Facilities

1.3.1. MNWD's Service Area

MNWD is located within the southern portion of the County of Orange and provides water and sewer service to over 172,000 customers. MNWD's service area encompasses 36.5 square miles. MNWD is almost entirely developed and encompasses almost all of the Cities of Aliso Viejo, and Laguna Niguel, and portions of the Cities of Laguna Hills, Mission Viejo, San Juan Capistrano and Dana Point.

MNWD's service area ranges in elevation between 230 feet above sea level at its lowest point to 904 feet at its highest. In general, elevations increase from west to east, with the

higher elevations located on the east side. MNWD is bordered by El Toro Water District (ETWD) to the north, South Coast Water District (SCWD) to the west and south, and the City of San Juan Capistrano and Santa Margarita Water District (SMWD) to the east. MNWD's service area boundaries are shown in Figure 1-2.

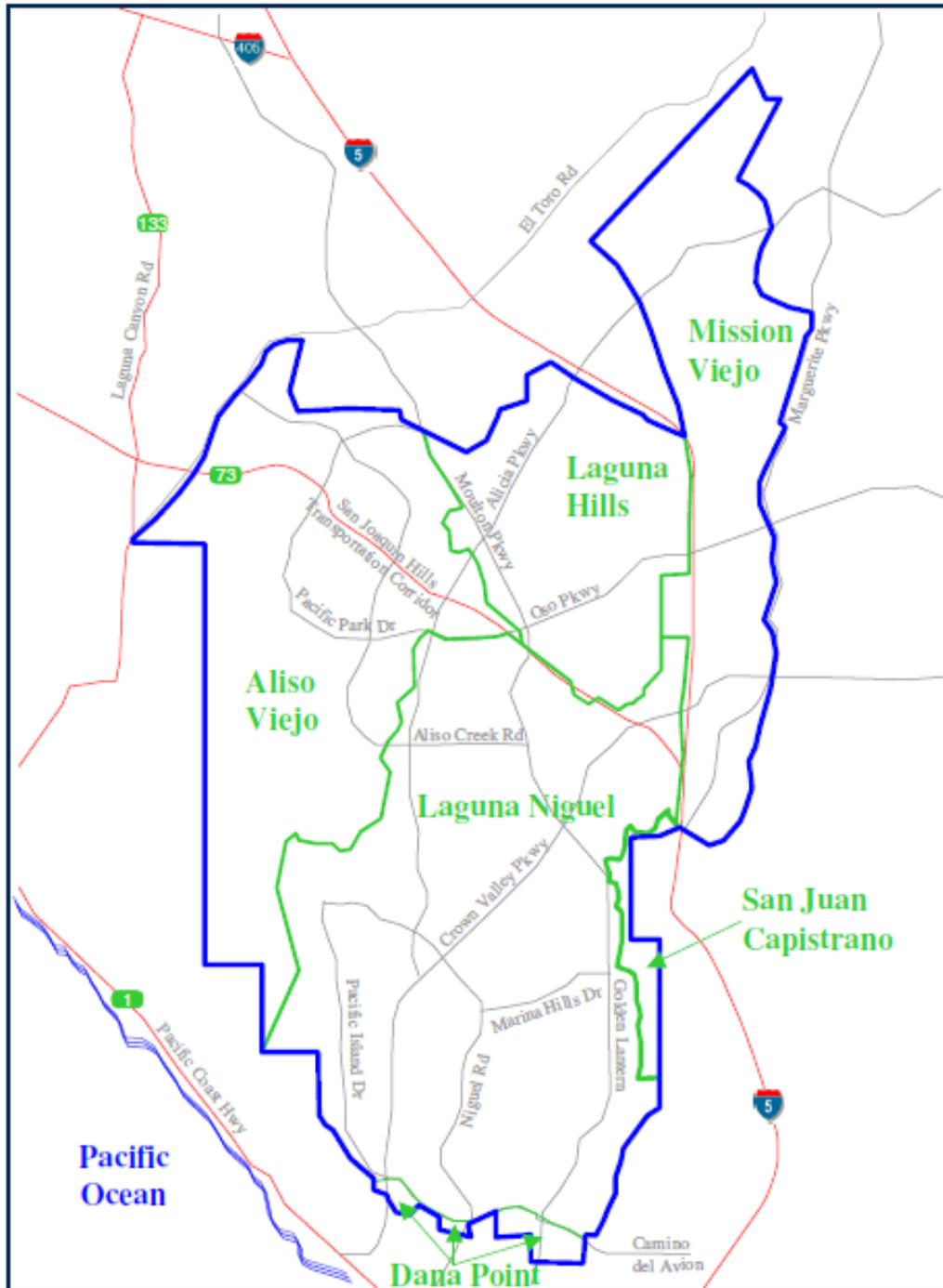


Figure 1-2: Moulton Niguel Water District's Service Area

1.3.2. MNWD's Water Facilities

All potable water served by MNWD is imported water furnished by the Metropolitan Water District of Southern California (Metropolitan) via the Municipal Water District of Orange County (MWDOC). The water is treated at the Robert B. Diemer Filtration Plant in Yorba Linda and conveyed to the MNWD through two Metropolitan-operated transmission mains: the East Orange County Feeder # 2 (EOCF #2) and the Allen-McColloch Pipeline (AMP). MNWD receives water from the EOCF #2 through the Joint Transmission Main (JTM) and the Eastern Transmission Main (a branch off the JTM). MNWD receives water from the AMP directly from takeouts off the AMP and indirectly from the South County Pipeline. MNWD owns capacity of four water importation transmission mains as follows: Joint Transmission Main (43 cfs), Eastern Transmission Main (10 cfs), Allen-McColloch Pipeline (35.1 cfs), and South County Pipeline (35 cfs).

MNWD operates and maintains over 700 miles of distribution pipeline ranging in size from 4 inches to 54 inches in diameter. MNWD has 26 steel and 2 pre-stressed concrete operational-storage reservoirs on 18 sites located at the top of each of the 7 pressure zones for a total of 70 MG. MNWD also owns capacity in three potable water reservoirs operated by other water districts – 0.7 MG of storage capacity in South Coast Water District's Zone VB-1 Reservoir, 13 MG in ETWD's R6 Reservoir, and 83 MG in the SMWD's Upper Chiquita Reservoir (currently under construction).

MNWD serves areas ranging in elevation from approximately 140 feet above mean sea level (ASL) to approximately 930 feet ASL through various pressure zones. MNWD has 27 pump stations to pump water from the lower pressure zones to the higher-pressure zones.

2. Water Demand

2.1. Overview

Currently, the total water demand for retail customers served by MNWD is about 33,846 acre-feet annually consisting of 26,726 acre-feet (79%) of potable and 7,120 (21%) of recycled water. MNWD experienced a pre-drought demand high of 41,692 in fiscal year 2007. The conservation measures over the last two years resulted in a significant reduction in water demand. However, MNWD expects that once the drought-induced conservation restrictions are lifted, the demand will rebound. This rebound, together with measures implemented to meet the demand reductions required by SBx7-7, is projected to have an increase in total demand to about 40,600 acre-feet by 2015. MNWD is anticipating demand reductions after 2015 to meet the requirements of SBx7-7 despite an overall increase in population of about 7% from the 2010 level.

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

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

2.2. Factors Affecting Demand

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

2.2.1. Climate Characteristics

MNWD is located in an area known as the South Coast Air Basin (SCAB). The SCAB climate is characterized by southern California's "Mediterranean" climate: a semi-arid

environment with mild winters, warm summers and moderate rainfall. The general region lies in the semi-permanent, high pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The usually mild climatologically pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The average temperature of MNWD’s service area ranges from 55 degrees Fahrenheit in January to 73 degrees Fahrenheit in August with an average annual temperature of 63 degrees. Annual precipitation is typically approximately 14 inches, occurring mostly between November and March (Table 2-1). The average evapotranspiration (ETo) is almost 50 inches per year, which is four times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts.

Table 2-1: Climate Characteristics

	Standard Monthly Average ETo (inches) [1]	Annual Rainfall (inches) [2]	Average Temperature (°F) [3]
Jan	2.18	2.96	54.5
Feb	2.49	3.07	55.9
Mar	3.67	2.97	57.3
Apr	4.71	0.77	60.9
May	5.18	0.28	64.2
Jun	5.87	0.10	68.1
Jul	6.29	0.01	72.1
Aug	6.17	0.14	73.1
Sep	4.57	0.34	71.4
Oct	3.66	0.40	66.1
Nov	2.59	1.22	59.1
Dec	2.25	1.79	54.3
Annual	49.63	13.87	63.1

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

[2] NOAA, Tustin Irvine Ranch, California 1971 to 2000, Mean Precipitation Total

[3] NOAA, Tustin Irvine Ranch, California 1971 to 2000, Mean Temperature

The sources of MNWD’s imported water supplies, the State Water Project and Colorado River Project, are influenced by weather conditions in Northern California and along the Colorado River. Both regions have recently been suffering from multi-year drought conditions and record low rainfalls, which directly impact demands and supplies to Southern California; as well as environmental and regulatory restrictions.

2.2.2. Demographics

The population of MNWD’s water service area has increased from 167,200 in 2005 to 172,068 in 2010, a 3 percent increase. The Center for Demographic Research (CDR) at California State University Fullerton projects a 6.6% increase in the population of MNWD’s water service area over the next 25 years. The projected population increases are the assumed “infilling” following development completion that was used in the water demand projections modeled by MWDOC. Only minimal changes in land use are anticipated over the next 25 years.

Table 2-2 shows the population projections in five-year increments to the year 2035.

Table 2-2: Population – Current and Projected

	2010	2015	2020	2025	2030	2035 [2]
Service Area Population [1]	172,068	174,342	176,616	178,891	181,165	183,439

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

[2] Optional, year not required by UWMP Act

2.2.3. Land Use

There are four major land uses in MNWD: (1) residential (single-family and multiple-family); (2) commercial (retail and light industrial); (3) schools; and (4) parks. Residential development, primarily single family, is the predominant use throughout MNWD. The highest concentration of commercial use is in the city of Mission Viejo (I.D. No. 3), which includes the Mission Viejo Mall. The highest concentration of schools (students) is also in I.D. No. 3, which includes Mission Viejo High School, Capistrano Valley High School, and Saddleback Community College. Additionally, Soka University is located within MNWD’s service area, in the city of Aliso Viejo. Its 103-acre campus includes academic and administrative building for its undergraduate and graduate programs, as well as residence halls housing 478 students.

Since MNWD is essentially built-out, any anticipated changes in land use would be through redevelopment of existing land uses. There is currently one proposed redevelopment project under consideration in the City of Laguna Niguel, discussed below.

2.2.3.1. Laguna Niguel Gateway Specific Plan

The City of Laguna Niguel is currently undertaking review of a project known as the Laguna Niguel Gateway Specific Plan. The proposed project is located on approximately 300 acres and would transform the proposed project area from low intensity commercial and light industrial uses to a high density office and retail center, with the inclusion of mixed use and multi-family residential uses. The proposed project would also include

opportunities for adding development of housing and resident-serving amenities. Full build out of the proposed project is estimated to occur over the next 20 years and could result in the introduction of up to 2,994 new dwelling units with an estimated population increase of 5,240; 534,648 square feet increase of retail uses, 399,695 square feet of Business Park that could include light industrial, 967,119 square feet increase of office use, 17.8 acres of auto sales and up to 350 new hotel rooms. Implementation of the proposed project would result in the loss of approximately 479,045 square feet of light manufacturing uses. The City is currently preparing an Environmental Impact Report for the proposed project. This development has been included in the population and demand projections of this report.

2.3. Water Use by Customer Type

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

This section provides an overview of the MNWD's water consumption by customer type in 2005 and 2010, as well as projections for 2015 to 2035. The customer classes are categorized as follows: single-family residential, multi-family residential, commercial/industrial/institutional (CII), dedicated landscape, and agriculture. These are the classes that are currently available in MNWD's billing system. MNWD does not currently use or project to have any water use towards saline water intrusion barriers, groundwater recharge, or conjunctive use. Other water uses including sales to other agencies and non-revenue water are also discussed in this section.

2.3.1. Overview

MNWD has 54,442 potable and recycled customer connections to its water distribution system. It is expected to add approximately 1,500 more connections by 2035. All connections in MNWD's service area are metered. Approximately 60% of MNWD's water demand is residential. CII including dedicated landscape consume approximately 40% of MNWD's water supply. MNWD does not provide water for agricultural use with the exception of water used by commercial nursery operations. Water demands for nursery operations are included in the commercial sector.

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

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

Fiscal Year Ending	Number of Accounts by Water Use Sector				
	Single Family	Multi-Family	CII	Landscape	Total Accounts
2005	46,535	2,048	2,586	2,533	53,702
2010	47,038	2,042	2,744	2,618	54,442
2015	47,175	2,048	2,752	2,626	54,601
2020	47,520	2,063	2,772	2,645	55,000
2025	47,866	2,078	2,792	2,664	55,400
2030	48,211	2,093	2,812	2,683	55,799
2035	48,384	2,100	2,823	2,693	56,000

Table 2-4: Past, Current and Projected Water Demand by Water Use Sector [1]

Fiscal Year Ending	Water Demand by Water Use Sectors (AFY)				
	Single Family	Multi-Family	CII	Landscape	Total Demand
2005	19,648	2,838	3,020	10,901	36,407
2010	17,589	2,600	2,678	10,980	33,846
2015	21,100	3,118	3,212	13,170	40,600
2020	19,748	2,919	3,006	12,327	38,000
2025	20,008	2,957	3,046	12,489	38,500
2030	20,268	2,995	3,085	12,652	39,000
2035	20,527	3,034	3,125	12,814	39,500

[1] Potable and recycled uses.

2.3.2. Residential

Residential water use accounts for the majority of MNWD’s water demands. The single family residential sector accounts for approximately 50% and multi-family residential accounts for 8% of the total water demand. Water consumption by the residential sector is projected to remain at about 60% through the 25-year planning horizon.

2.3.3. Non-Residential

Non-residential demand accounts for approximately 40% of the overall demand and is expected to remain so through to 2035. MNWD has a mix of commercial uses (markets, restaurants, etc.), public entities (such as schools, fire stations and government offices), office complexes, light industrial, warehouses and facilities serving the public. CII uses (excluding large landscape) represent a combined 10% of MNWD’s total demand. Demands from large landscapes such as parks and golf courses are expected to remain at

a third of MNWD’s total water demands for the next 25 years. About 60% of the landscape demands are met by the recycled water supply.

2.3.4. Other Water Uses

2.3.4.1. Sales to Other Agencies

MNWD does not sell water to other agencies except in case of emergencies.

2.3.4.2. Non-Revenue Water

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. Non-revenue water consists of three components: unbilled authorized consumption (e.g. hydrant flushing, fire fighting, and blow-off water from well start-ups), real losses (e.g. leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies). MNWD’s non-revenue water amounts to about 7% of MNWD’s total demand and is expected to remain so (Table 2-5).

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

Water Use	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035
Saline Barriers	-	-	-	-	-	-	-
Groundwater Recharge	-	-	-	-	-	-	-
Conjunctive Use	-	-	-	-	-	-	-
Raw Water	-	-	-	-	-	-	-
Recycled Water	-	-	-	-	-	-	-
Unaccounted-for System Losses	2,548	2,369	2,842	2,660	2,695	2,730	2,765
Total	2,548	2,369	2,842	2,660	2,695	2,730	2,765

2.4. SBx7-7 Requirements

2.4.1. Overview

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement Governor Schwarzenegger’s 2008 water use reduction goals to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. As discussed above, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply to SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still

has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirement will not be eligible for water related grant, or loan, from the state on and after July 16, 2016. However, if an agency that is not in compliance documents a plan and obtains funding approval to come into compliance then could become eligible for grants or loans.

2.4.2. SBx7-7 Compliance Options

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

- *Option 1* requires a simple 20 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 commiserate with Model Landscape Ordinance
 - 10 percent reduction in baseline CII water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State’s 20x2020 Water Conservation Plan, which for MNWD is 141.6 GPCD.
- *Option 4* requires the subtraction of Total Savings from the Base GPCD:
 - Total Savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

MNWD’s Compliance Option Selection

With the assistance of MWDOC in the calculation of MNWD’s base daily per capita use and water use targets, MNWD has selected **Option 1** to comply with SBx7-7.

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

2.4.3. Regional Alliance

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

MNWD is a member of the Orange County 20x2020 Regional Alliance formed by MWDOC. This regional alliance consists of 29 retail agencies in Orange County as described in MWDOC's 2010 RUWMP. The Regional Alliance Weighted 2015 target is 174 GPCD and 2020 target is 157 GPCD. If the Regional Alliance fails to meet its water use target, then DWR will look whether MNWD has achieved its individual target.

2.4.4. Baseline Water Use

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

Recycled water use represented 17.5% of MNWD's retail delivery in 2008; therefore, a 15-year instead of a 10-year rolling average was calculated. MNWD's baseline water use is **214.8 GPCD** which was obtained from the 15-year period July 1, 1990 to June 30, 2005.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for MNWD as well as the service area population and annual water use data which the base daily per capita water use was derived. Data provided in Table 2-6 was used to calculate the continuous 15-year average baseline GPCD. Moreover, regardless of the compliance option adopted by MNWD, it will need to meet a minimum water use target of 5% reduction from a five-year baseline as calculated in Table 2-7. MNWD's gross water use was determined using volume into its distribution system (sales from MWDOC including any losses) while deducting any recycled water for direct use during the 15-year period.

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

Highest Available Baseline [1]		Beginning	Ending
15 Year Avg		July 1, 1990	June 30, 2005
Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
1991	108,610	27,731,616	255
1992	114,479	26,520,522	232
1993	119,876	27,825,890	232
1994	123,646	28,856,025	233
1995	126,832	29,050,108	229
1996	130,974	31,613,796	241
1997	136,571	33,008,796	242
1998	142,666	29,175,717	205
1999	148,748	31,388,289	211
2000	156,647	33,960,191	217
2001	160,178	30,815,863	192
2002	163,359	31,881,887	195
2003	166,073	30,104,437	181
2004	167,723	31,015,569	185
2005	168,034	28,772,822	171
Base Daily Per Capita Water Use:			214.8

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

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

Highest Available Baseline [2]		Beginning	Ending
5 Year Avg		July 1, 2003	June 30, 2008
Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2004	167,723	31,015,569	185
2005	168,034	28,772,822	171
2006	168,172	29,851,523	178
2007	168,327	32,745,169	195
2008	169,361	31,319,727	185
Base Daily Per Capita Water Use:			182.6
Minimum Water Use Target (5% reduction):			173.5

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

2.4.5. SBx7-7 Water Use Targets

Under Compliance Option 1, the simple 20% reduction from the baseline, MNWD’s 2015 interim water use target is 193.3 GPCD and the 2020 final water use target is **171.8 GPCD** as shown in Table 2-8. This target meets the requirement of being lower than the minimum water use target of 5% reduction from the five-year baseline.

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

	Baseline	2015 Target	2020 Target
Option 1 - Simple 20% Reduction	214.8	193.3	171.8

2.4.6. Water Use Reduction Plan

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

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

MNWD is currently on track to meet the SBx7-7 per capita water use reduction requirements individually under Option 1 compliance. In FY2009-10, MNWD’s per capita water use was approximately 150 GPCD as seen in Figure 2-1, which is below the 2020 target of 171.8 GPCD. The FY 2009-10 was a drought year with level II mandatory conservation. While the mandatory conservation requirements have been lifted, MNWD will continue to monitor the water use to determine if additional conservation measures will be required to maintain the SBx7-7 per capita target. Currently, MNWD is implementing Demand Management Measures as described in Section 4 of this UWMP. MNWD also recently implemented budget-based tiered rate structure. Because the SBx7-7 requirements apply to potable per capita water use, MNWD’s planned recycle water expansion from 7,000 AFY in 2010 to 8,500 AFY by 2015 and 8,700 AFY by 2020 will also benefit MNWD’s compliance.

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

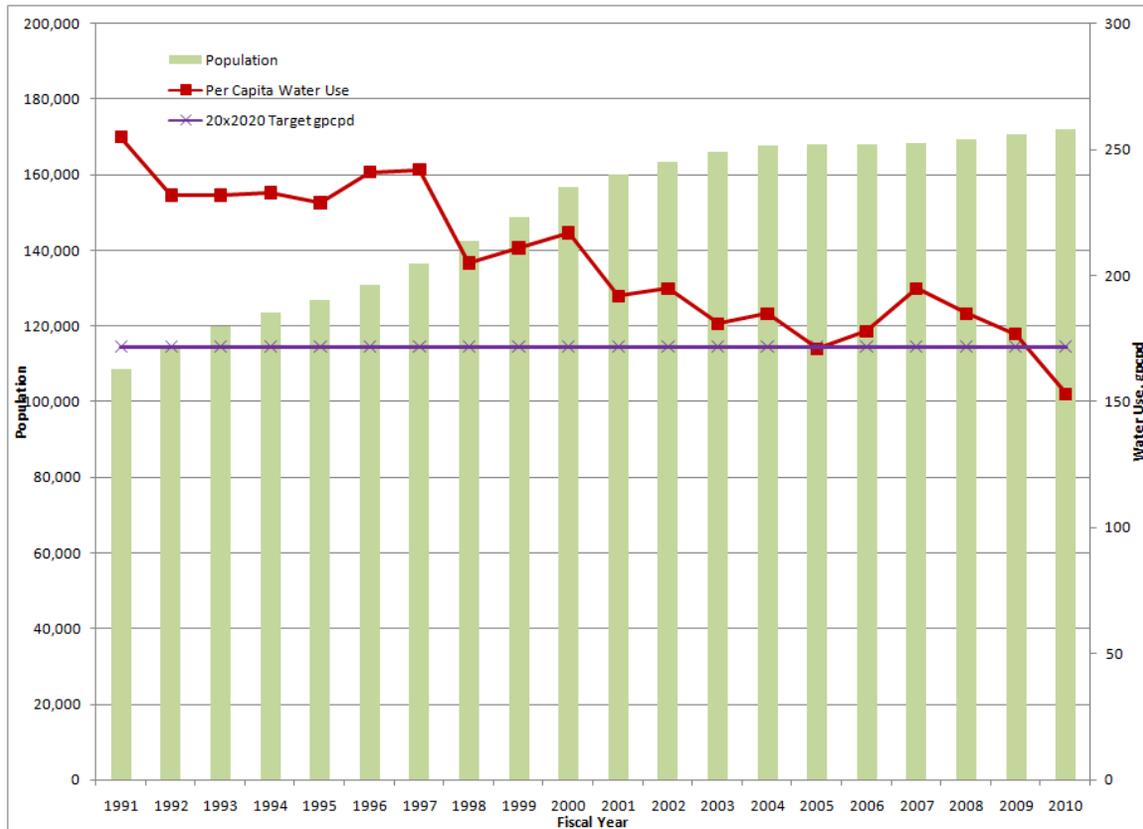


Figure 2-1: MNWD Per Capita Per Day Water Use from 1991 to 2005

Metropolitan Long Term Conservation Plan

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

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

- Achieve the 2010 IRP conservation target² – The target for new water savings through conservation is a regional per capita use of 159 gallons per day in 2015 and 141 gallons per day in 2020.
- Pursue innovation that will advance water conservation
- Transform the public’s value of water within this region – A higher value on water within this region can lead to a conservation ethic that results in permanent change in water use behavior, earlier adoption of new water saving technologies, and transition towards climate-appropriate landscapes.

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

- **Use catalysts for market transformation.** Metropolitan and member agencies will pursue market transformation to affect the market and consumer choices for water efficient devices and services.
- **Encourage action through outreach and education.** Metropolitan and member agencies will provide outreach, educational workshops, and training classes through a range of media and formats which are essential to changing public perceptions of the value of water.
- **Develop regional technical capability.** Metropolitan and member agencies will conduct research, facilitate information sharing, and/or provide technical assistance to member agencies and retail agencies to develop technical capabilities within the region for water budgeting, advanced metering infrastructure, ordinances, retail rate structures, and other conservation measures.
- **Build strategic alliances.** Metropolitan and member agencies will form strategic alliances with partners to leverage resources, opportunities and existing momentum that support market transformation.

² Based on Metropolitan’s population and demand and the methodologies for setting targets described in the Water Conservation Act of 2009, Metropolitan’s service area baseline water demand is estimated to be 178 GPCD. A 10% and a 20% reduction would reduce the demand to 159 and 141 GPCD, respectively. These targets as documented in Metropolitan’s 2010 IRP represent Metropolitan’s goal for its entire service area. It is important to note that the SBx7-7 target for MNWD as an individual is 171.8 GPCD. As long as this target is met, MNWD will be in compliance with the Water Conservation Act of 2009.

- **Advance water efficiency standards.** Metropolitan and member agencies will work to advance water efficiency codes and standards to increase efficiency and reduce water waste.

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

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

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

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

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

Periodic Review

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

2.5. Demand Projections

2.5.1. 25 Year Projections

One of the main objectives of this UWMP is to provide an insight into MNWD’s future water demand outlook. As discussed above, currently, MNWD’s total water demand is about 33,846 acre-feet annually consisting of 26,726 acre-feet (79%) of potable and 7,120 (21%) of recycled water. MNWD experienced a pre-drought demand high of 41,692 in fiscal year 2007. The conservation measures over the last two years resulted in a significant reduction in water demand. However, MNWD expects that once the drought-induced conservation restrictions are lifted, the demand will rebound. This rebound, together with measures implemented to meet the demand reductions required by SBx7-7, is projected to have an increase in total demand to about 40,600 acre-feet by 2015 as illustrated in Table 2-9. MNWD is anticipating demand reductions after 2015 to meet the requirements of SBx7-7 despite an overall increase in population of about 7% from the 2010 level.

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

Water Supply Sources	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
MWDOC (Imported Treated Full Service (non-int.))	26,726	22,700	19,900	20,200	20,600	21,000
Baker Treatment Plant (Imported Untreated Full Service (non-int.))	-	9,400	9,400	9,400	9,400	9,400
Recycled Water	7,120	8,500	8,700	8,900	9,000	9,100
Total	33,846	40,600	38,000	38,500	39,000	39,500

MNWD’s 25-year demand projections for imported water shown in Table 2-10 are based on the projections furnished by MWDOC. MWDOC as the regional wholesale supplier of Orange County works in collaboration with each of its member agencies as well as with Metropolitan, its wholesaler to develop demand projections for imported water. The projections are based on a very small increase in population of approximately 0.3% per year between 2010 and 2035 because MNWD is essentially built out.

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

Wholesales	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	22,700	19,900	20,200	20,600	21,000
Baker Treatment Plant	9,400	9,400	9,400	9,400	9,400

2.5.2. Low Income Household Projections

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

In order to identify the low income housing projections within its service area, DWR³ recommends that retail suppliers rely on the Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of governments (COG), in coordination with the California Department of Housing and Community Development.

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

Existing and projected housing needs for Orange County were incorporated into the Southern California Association of Governments’ (SCAG) 2007 Final Regional Housing Need Allocation Plan (2007 RHNA Plan)⁴. This plan covers the planning period January 1, 2006 to June 30, 2014. The next RHNA process is not expected to be completed until fall of 2012; therefore, the 2007 RHNA Plan will be used for the purpose of this 2010 UWMP.

³ California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)

⁴ Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

The projected water demands for low-income households in the MNWD service area was estimated by calculating the percentage of projected low income units in the service area as a percentage of the total projected units from the 2007 RHNA Plan. Given that MNWD’s service area covers portions of six cities within Orange County, a weighted average of the RHNA projection for each city served by MNWD was calculated based on the proportion of each city within the water district. For example, as summarized in Table 2-11, approximately 27% of MNWD’s service area lies within the City of Aliso Viejo. Based on the 2007 RHNA Plan, the projected housing need for low-income households in the City of Aliso Viejo is 40.6% of total housing needs. Therefore, the area weighted projected water demands for low-income households for the City of Aliso Viejo is 10.96% (27% times 40.6%). The same procedure is repeated for all cities within MNWD’s service area, which results in an overall projected housing need for low-income households of 40.0% as a percentage of total housing units.

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

City	% Area Served	% Low-income Households by City (RHNA)	Weighted % Low-income Households
Aliso Viejo	27%	40.6%	10.96%
Dana Point	1%	39.7%	0.40%
Laguna Hills	12%	37.5%	4.50%
Laguna Niguel	41%	40.3%	16.52%
Mission Viejo	18%	40.4%	7.27%
San Juan Capistrano	1%	39.3%	0.39%
Total	100%	Weighted Average	40.0%

Table 2-12 provides a breakdown of the projected water needs for low-income single family and multifamily units. The projected water demands shown here represent 40.0% of the projected water demand by customer type for single-family and multifamily categories provided in Table 2-4 above. For example, the total single-family residential demand is projected to be 21,100 AFY in 2015 and 20,527 AFY in 2035. The projected water demands for housing needed for single family low-income households are 8,450 and 8,220 AFY for 2015 and 2035, respectively.

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

Water Use Sector	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Retail Demand	40,600	38,000	38,500	39,000	39,500
Total Residential Demand	24,218	22,667	22,965	23,263	23,561
<i>Total Low-income Households Demand</i>	<i>9,699</i>	<i>9,077</i>	<i>9,197</i>	<i>9,316</i>	<i>9,435</i>
SF Residential Demand - Total	21,100	19,748	20,008	20,268	20,527
<i>SF Residential Demand - Low-income Households</i>	<i>8,450</i>	<i>7,908</i>	<i>8,013</i>	<i>8,117</i>	<i>8,220</i>
MF Residential Demand - Total	3,118	2,919	2,957	2,995	3,034
<i>MF Residential Demand - Low-income Households</i>	<i>1,249</i>	<i>1,169</i>	<i>1,184</i>	<i>1,199</i>	<i>1,215</i>

It is important to note that the percentages of low income household by city provided by RHNA represent “targeted” and not actual percentages of existing low-income households. Currently, approximately 26% of the households served by MNWD are classified as low-income based on the six cities’ Housing Element.

3. Water Sources and Supply Reliability

3.1. Overview

All of MNWD's potable water supply is imported water from Metropolitan through MWDOC. The water system provides reliable water service to over 172,000 residents within its service area. The system currently has nine connections to the Joint Regional Water Supply System (JRWS), three connections to the AMP pipeline, and one connection to the South County Pipeline. Imported potable water delivered to MNWD comes from 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 State Water Project (SWP) water through the Yorba Linda Feeder. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The imported water supply numbers shown here represent only the amount of supplies projected to meet demands and not the full supply capacity.

Figure 3-1 depicts MNWD's current and projected water supplies by source through 2035.

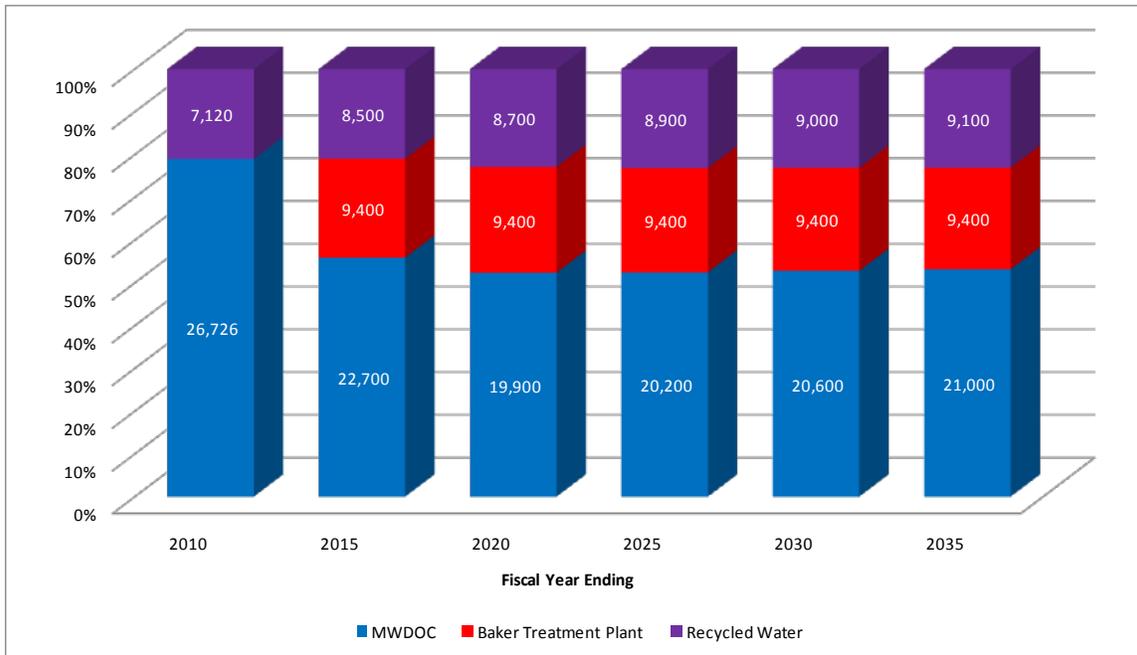


Figure 3-1: Current and Projected Water Supplies (AFY)

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

3.2. Imported Water

MNWD currently relies on 26,726 AFY of imported water wholesaled by Metropolitan through MWDOC. Imported water represents approximately 79% of MNWD’s total water supply. Metropolitan’s water supply originates from two principal sources - the Colorado River via the Colorado Aqueduct and the Lake Oroville watershed in Northern California through the State Water Project (SWP). This water is treated at the Robert B. Diemer Filtration Plant located north of Yorba Linda. Typically, the Diemer Filtration Plant receives a blend of Colorado River water from Lake Mathews through the Metropolitan Lower Feeder and SWP water through the Yorba Linda Feeder. The water is conveyed to MNWD through two Metropolitan-operated transmission mains: the East Orange County Feeder #2 (EOCF #2) and the Allen-McColloch Pipeline (AMP). MNWD receives water from the EOCF #2 through the Joint Transmission Main (JTM) and the Eastern Transmission Main (ETM), a branch off the JTM. MNWD receives

water directly from takeouts off the AMP and indirectly from the South County Pipeline. Metropolitan feeders along with major water transmission mains are shown in Figure 3-2.



Figure 3-2: Metropolitan Feeders and Transmission Mains Serving Orange County

Joint Transmission Main

On June 1, 1961, MNWD sold its first waterworks bond, a \$6,700,000 bond to finance its 45 cubic feet per second (cfs) capacity in the Tri-Cities Transmission Main and the EOCF No. 2. The Tri-Cities Transmission Main, now known as the JTM, is jointly owned by MNWD, the Irvine Ranch Water District, the El Tero Water District, the Capistrano Valley Water District (City of San Juan Capistrano), the City of San Clemente, and the

South Coast Water District. The EOCF #2 is owned by MWDSC, the City of Anaheim, the City of Santa Ana, and MWDOC (including MNWD). The JTM conveys imported water from the EOCF #2 operated by Metropolitan Water District of Southern California to South Orange County. The JTM is operated under contract by the South Coast Water District. MNWD serves Aliso Viejo, Laguna Niguel, and Dana Point from the JTM.

In 1985, MNWD de-annexed Improvement District No. 10 (located on the northwest side of El Toro Road) to ETWD. MNWD transferred 2 cfs of its JRWSS capacity to ETWD with the de-annexation, leaving MNWD with 43 cfs of capacity.

Eastern Transmission Main

The Eastern Transmission Main (ETM) begins as a branch off the JTM near Moulton Parkway and Laguna Hills Drive. MNWD owns 10 cfs of capacity in the ETM, with the remaining capacity owned by the Capistrano Valley Water District (City of San Juan Capistrano).

Allen-McColloch Pipeline

On March 30, 1978, MNWD acquired 30 cfs of water capacity in the AMP, a major water supply line constructed by MWDOC from the Robert B. Diemer Filtration Plant located in Yorba Linda to a terminus in the northern section of Mission Viejo. Originally, the capacity as well as the ownership of the AMP was based on theoretical calculations. In 1988, the actual capacity of the AMP was measured to be significantly higher than the theoretical capacity. This surplus capacity became known as the “splatter capacity” and was allocated to the AMP participants based on capacity ownership. MNWD received an additional 5.1 cfs, giving it a total of 35.1 cfs of capacity in the AMP. In 1995, Metropolitan purchased the AMP from MWDOC and now operates the AMP. The AMP terminates in the northeast section of Mission Viejo and conveys water primarily to Mission Viejo and Laguna Hills.

South County Pipeline

Through the AMP Flow Augmentation Project, MNWD obtained 35 cfs of water capacity in the South County Pipeline (SCP). The SCP conveys water from the AMP to SMWD, MNWD, SCWD, and the cities of San Juan Capistrano and San Clemente. MNWD obtains flow from the SCP at MNWD’s takeout (SC-2) and delivers flow to Laguna Hills, Mission Viejo, Laguna Niguel, and Aliso Viejo via the Central Intertie Pipeline (CIP).

Baker Water Treatment Plant

MNWD is currently participating in the design of a potable water treatment facility on the Baker pipeline. The Baker Pipeline Regional Water Treatment Plant will be a new 25

million gallon day plant at the existing Irvine Ranch Water District's (IRWD) Baker Filtration Plant site in Lake Forest. The Baker Water Treatment Plant will treat imported untreated water from the Santiago Lateral and Irvine Lake through the Baker Pipeline. The proposed project would provide increased water supply reliability to southern Orange County by providing treated water to customers of IRWD, ETWD, Moulton Niguel Water District, Santa Margarita Water District and Trabuco Canyon Water District (TCWD). It will also help provide a reliable local potable water supply in the event of emergency conditions or scheduled maintenance on the Metropolitan treated water delivery system (Diemer Filtration Plant, Lower Feeder Pipeline or AMP). The Baker Water Treatment Plant is expected to come online by 2015. MNWD will own 13 cubic feet per second of capacity in the plant.

Contractual Agreements

MNWD also has entitlements and/or written contracts with MWDOC to receive imported (potable) water from Metropolitan via the regional distribution system located in Orange County, components of which are described above. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to MNWD's distribution system and, therefore, operate in tandem with water entitlements and/or contracts to receive supplemental water for purposes of demonstrating not only water supply reliability, but also physical delivery system reliability. All imported water supplies assumed in this document are available to MNWD from existing infrastructure facilities.

The Agreement for Sale and Purchase of the AMP (Metropolitan Agreement No. 4623) among Metropolitan, MWDOC, MWDOC Water Facilities Corporation and certain other identified participants, including MNWD, dated July 1, 1994 (AMP Sale Agreement) requires Metropolitan, among other things, to meet MNWD's requests for water deliveries (subject to the availability of water from Metropolitan). The AMP Sale Agreement further requires Metropolitan to augment/increase capacity necessary to meet MNWD's projected ultimate service area water demands. Furthermore the enumerated capacity is the nominal peaking capacity that can be exceeded subject to certain peaking penalties.

3.2.1. Metropolitan's 2010 Regional Urban Water Management Plan

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

Colorado River Supplies

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

State Water Project Supplies

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

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

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

Storage

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

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

Supply Reliability

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

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

Forecast Year	2015	2020	2025	2030	2035
Average Year Supply Capability¹ and Projected Demands Average of 1922-2004 Hydrologies (acre-feet per year)					
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct ²	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	3,485,000	3,810,000	4,089,000	3,947,000	3,814,000
Demands					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,006,000	1,933,000	1,985,000	2,049,000	2,106,000
Surplus	1,479,000	1,877,000	2,104,000	1,898,000	1,708,000
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	588,000	689,000	1,051,000	1,051,000	1,051,000
Potential Surplus	2,067,000	2,566,000	3,155,000	2,949,000	2,759,000

¹ Represents Supply Capability for resource programs under listed year type.

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

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

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

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

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

**Single Dry-Year
Supply Capability¹ and Projected Demands
Repeat of 1977 Hydrology
(acre-feet per year)**

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct ²	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	2,457,000	2,782,000	2,977,000	2,823,000	2,690,000
Demands					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,171,000	2,162,000	2,201,000	2,254,000	2,319,000
Surplus	286,000	620,000	776,000	569,000	371,000
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	762,000	862,000	1,036,000	1,036,000	1,036,000
Potential Surplus	1,048,000	1,482,000	1,812,000	1,605,000	1,407,000

¹ Represents Supply Capability for resource programs under listed year type.

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

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

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

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

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

Forecast Year	2015	2020	2025	2030	2035
Multiple Dry-Year Supply Capability¹ and Projected Demands Repeat of 1990-1992 Hydrology (acre-feet per year)					
Current Programs					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct ²	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit ⁴	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	2,248,000	2,417,000	2,520,000	2,459,000	2,415,000
Demands					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
Total Demands on Metropolitan⁵	2,236,000	2,188,000	2,283,000	2,339,000	2,399,000
Surplus	12,000	229,000	237,000	120,000	16,000
Programs Under Development					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply ³	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit ⁴	0	0	0	0	0
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	404,000	553,000	733,000	755,000	755,000
Potential Surplus	416,000	782,000	970,000	875,000	771,000

¹ Represents Supply Capability for resource programs under listed year type.

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

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

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

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

3.2.2. MNWD’s Imported Water Supply Projections

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

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

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

Wholesaler Sources	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
MWDOC	32,100	29,300	29,600	30,000	30,400

3.3. Groundwater

Groundwater sources are currently unavailable to the MNWD due to underlying geology. However, MNWD has some water rights in the San Juan Groundwater Basin. The San Juan Basin is managed by the San Juan Basin Authority (SJBA), a joint powers authority created in 1971 for the purpose of carrying out water resources development of the San Juan Basin. The members of the SJBA are SMWD, MNWD, SCWD, and the City of San Juan Capistrano⁵.

San Juan Groundwater Basin Characteristics

The San Juan Basin is located in southern Orange County within the San Juan Creek Watershed and is comprised of four sub-basins: Upper San Juan, Middle San Juan, Lower San Juan and Lower Trabuco. The basin is bounded on the west by the Pacific Ocean and otherwise by tertiary semi-permeable marine deposits. San Juan Creek drains the San Juan Valley, and several other creeks drain valley tributaries to the San Juan.

⁵<http://www.mwdh2o.com/mwdh2o/pages/yourwater/supply/groundwater/PDFs/OrangeCountyBasins/SanJuanBasin.pdf>

The primary water-bearing unit within the Basin is Quaternary alluvium - a heterogeneous mixture of sand, silt, and gravel in the eastern portion of the basin to coarse sand near the center to fine-grained lagoonal sediments in the western portion of the basin. Thickness of the alluvium average about 65 feet and may reach more than 125 feet. The total storage capacity has been estimated to be 90,000 AF. Wells typically yield from 450 to 1,000 gpm.

Recharge of the Basin is from flow in San Juan Creek, Oso Creek, and Arroyo Trabuco and precipitation to the valley floor. Water from springs flows directly from Hot Spring Canyon into San Juan Creek adding to recharge.

Groundwater Budget

A study by NBS Lowry (1994) investigated and modeled the Basin from 1979 through 1990. They determined a mean pump extraction capacity of 5,621 AFY and a mean subsurface inflow of 2,246 AFY. Average subsurface outflow to the ocean is estimated to be about 450 AFY.

SJBA approved the San Juan Basin Groundwater Management and Facility Plan (GMFP) in 1995. GMFP represents the first step in the implementation of the SJBA mission to develop and maintain a reliable, good quality and economical local water supply for the residents in the Basin by maximizing use of local ground and surface water, the San Juan Creek and its tributaries, with due consideration for the preservation and enhancement of the environment, including, but not limited to, natural resources, fish and wildlife, infrastructure improvements and the cultural heritage of the area. Additional studies, such as the Preliminary Well Design and Site Selection Report, prepared in June 2001 by Geotechnical Consultants, Inc., confirm the findings in the SJBA Groundwater Management and Facility Plan. The SJBA is currently in the process of updating the GWMFP.

3.3.1. Historical Groundwater Production and Projected Extraction

Up until 2004, there has been limited amount of extraction of supply from the San Juan Basin. None of MNWD's supplies were from groundwater extracted from this Basin. In 2000, the California State Water Resources Control Board granted water rights permit of 8,026 AFY to SJBA for diversion and use from the Basin. Of this, 1,353 AFY is allocated to MNWD. The permit also allows additional 2,676 AFY to the SJBA in the future depending on certain conditions enumerated in the permit with 1,804 AFY of this future right allocated to MNWD. SJBA completed the Phase I of San Juan Basin Desalter Project, also referred as San Juan Groundwater Recovery Project (GWRP), a reverse osmosis filtration/treatment facility in December 2004. This facility is leased to the City of San Juan Capistrano for a 50-year term. According to the agreement between the SJBA and the City of San Juan Capistrano, the City can pump 5,800 AFY to produce up

to 4,800 acre-feet of groundwater annually from the Basin. Of this, 978 AF of pumping capacity and 809 AF of production are allocated to MNWD. MNWD is currently not planning to produce or treat brackish water from the Basin but are participating in a review of the GWMFP update to determine the long-term viability of utilizing the Basin as a source of supply.

Table 3-5 shows the water rights allocated to MNWD by the Permit No.21074 issued by the State Water Resources Control Board. The water rights have been assigned to MNWD by the SJBA.

Table 3-5: Groundwater Rights (AFY)

Basin Name	Water Rights (AFY)
San Juan Groundwater Basin	1,353
Total	1,353

3.4. Recycled Water

One of the major components of MNWD’s water conservation program is its recycled water program. MNWD provides additional treatment to a portion of its secondary treated wastewater, rather than discharging it to the ocean, and distributes it to landscape irrigation services with a separate distribution system. Demands continue to increase as new services are continually being connected to the recycled water system. MNWD’s recycled water program is more fully described in Section 6.

3.5. Supply Reliability

3.5.1. Overview

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

Metropolitan’s 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The foundation of Metropolitan’s resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. MWDOC is reliant on Metropolitan for all of its imported water. With the addition of planned supplies under development, Metropolitan’s 2010 RUWMP finds that Metropolitan will be able to meet full-service demands from 2015 through 2035, even under a repeat of the worst drought. Table 3-6 shows the reliability of the wholesaler’s supply for single dry year and multiple dry year scenarios.

Table 3-6: Wholesaler Supply Reliability - % of Normal AFY

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

In addition to meeting full-service demands from 2015 through 2035, Metropolitan projects reserve and replenishment supplies to refill system storage. MWDOC’s 2010 RUWMP states that it will meet full service demands to its customers from 2015 through 2035. Table 3-7 shows the basis of water year data used to predict drought supply availability.

Table 3-7: Basis of Water Year Data

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

3.5.2. Factors Impacting Reliability

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

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

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

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

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

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt however climatic factors would have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however severe pattern changes may occur in the future. Table 3-8 shows the factors resulting in inconsistency of supply.

Table 3-8: Factors Resulting in Inconsistency of Supply

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

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

3.5.2.1. Water Quality

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

Metropolitan's primary sources face individual water quality issues of concern. The CRA water source contains a higher level of total dissolved solids (TDS) and a lower level of organic material while the SWP contains a lower TDS level while its level of organic materials is much higher, leading to the formation of disinfection byproducts. To remediate the CRA's high level of salinity and the SWP's high level of organic materials, Metropolitan has been blending CRA water with SWP supplies as well as implementing updated treatment processes to decrease the disinfection byproducts. In addition, Metropolitan has been engaged in efforts to protect its Colorado River supplies from threats of uranium, perchlorate, and chromium VI while also investigating the potential water quality impact of emerging contaminants, N-nitrosodimethylamine (NDMA) and pharmaceuticals and personal care products (PPCPs). Metropolitan has assured its ability to overcome the above mentioned water quality concerns through its protection of source waters, implementation of renovated treatment processes, and blending of its two sources. While unforeseeable water quality issues could alter reliability, Metropolitan's current strategies ensure the deliverability of high quality water.

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

Table 3-9 shows the amount in acre-feet per year that water quality would have on supply.

Table 3-9: Water Quality – Current and Projected Water Supply Impacts (AFY)

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

3.5.3. Normal-Year Reliability Comparison

MNWD has entitlements and/or written contracts to receive imported water from Metropolitan via the regional distribution system. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water supplies assumed in this section are available to the MNWD from existing water transmission facilities. Table 3-10 shows supply and demand under normal year conditions. Water supplies are projected to be available from Metropolitan; however, it is not included here since projected supplies meet projected demands.

Table 3-10: Projected Normal Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	40,600	38,000	38,500	39,000	39,500
Recycled Water	8,500	8,700	8,900	9,000	9,100
Imported	32,100	29,300	29,600	30,000	30,400
Total Supply	40,600	38,000	38,500	39,000	39,500

3.5.4. Single Dry-Year Reliability Comparison

MNWD has documented that it is 100% reliable for single dry year demands from 2015 through 2035 with a demand increase of 7.2% using FY 2006-07 as the single dry year. Table 3-11 compiles supply and demand projections for a single dry water year. The available imported supply is greater than shown; however, it is not included because all demands are met.

Table 3-11: Projected Single-Dry Year Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	43,523	40,736	41,272	41,808	42,344
Recycled Water	8,500	8,700	8,900	9,000	9,100
Imported	35,023	32,036	32,372	32,808	33,244
Total Supply	43,523	40,736	41,272	41,808	42,344

3.5.5. Multiple Dry-Year Reliability Comparison

MNWD is capable of providing their customers all their demands with significant reserves in multiple dry years from 2015 through 2035 with a demand increase of 7.2% using FY 2006-07 as the multiple dry years. This is true even if the demand projections were to be increased by a large margin. Table 3-12 shows supply and demand projections under multiple dry year conditions.

Table 3-12: Projected Multiple Dry Year Period Supply and Demand (AFY)

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
First Year Supply	Total Demand	43,523	40,736	41,272	41,808	42,344
	Recycled Water	8,500	8,700	8,900	9,000	9,100
	Imported	35,023	32,036	32,372	32,808	33,244
	Total Supply	43,523	40,736	41,272	41,808	42,344
Second Year Supply	Total Demand	43,523	40,736	41,272	41,808	42,344
	Recycled Water	8,500	8,700	8,900	9,000	9,100
	Imported	35,023	32,036	32,372	32,808	33,244
	Total Supply	43,523	40,736	41,272	41,808	42,344
Third Year Supply	Total Demand	43,523	40,736	41,272	41,808	42,344
	Recycled Water	8,500	8,700	8,900	9,000	9,100
	Imported	35,023	32,036	32,372	32,808	33,244
	Total Supply	43,523	40,736	41,272	41,808	42,344

4. Demand Management Measures

4.1. Overview

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

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

MNWD recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. MNWD has been a signatory to the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs) Memorandum of Understanding (MOU) since December 1991. Demand Management Measures as defined by the Act corresponds to the CUWCC's BMPs. MNWD is currently implementing all 14 DMMs described in the Act.

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

4.2. Water Use Efficiency Programs

As Signatory to the CUWCC MOU, MNWD has committed to use good-faith efforts to implement the 14 cost-effective BMPs. MNWD has implemented and is actively participating in many water conservation activities. A Water Conservation Program Resolution was adopted by the Board of Directors in 2008 as Resolution No. 08-46. Moreover, as a member agency of MWDOC, MNWD actively participates in various Metropolitan residential and CII rebate programs, as well as school and public education and outreach programs, and other programs administered by MWDOC. MWDOC implements many of the urban water conservation BMPs on behalf of its member agencies. MWDOC's 2010 UWMP should be referred to for a detailed discussion of each regional BMP program. MNWD works cooperatively with MWDOC for technical and

financial support needed to facilitate meeting the terms of the MOU. MWDOC’s current Water Use Efficiency Program, detailed in their 2010 Regional UWMP, implemented on behalf of its member agencies following three basic focuses:

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

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

Table 4-1: MNWD’s Demand Management Measures Overview

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

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

Residential Survey Program – MNWD currently implements a residential landscape survey program. Under this program, MNWD is conducting landscape water use audits

for all of its residential customers. As of 2008, 59 outdoor surveys were completed for single family residences.

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

Smart Timer Rebate Program - The Smart Timer Rebate Program started in FY 2004/05. Under this regional program, residential and commercial properties, including Homeowners Association (HOA) common areas, are eligible for a rebate when they purchase and install a weather-based irrigation controller which has the potential to save 41 gallons per day per residence and reduce runoff and pollution by 49%. Once residents are enrolled in the rebate program, a detailed residential outdoor water survey is conducted to inspect the irrigation system, distribution uniformity, and irrigated area. Water savings from the program can be estimated from information obtained from the water surveys pre- and post-installation of the Smart Timer. To date, 166 rebates have been given out to residential customers and 267 rebates to small commercial customers which translate to a water savings of 498 acre-feet, collectively. MNWD will continue to provide on-site meetings, literature and incentives related to this program. As part of the MWDOC Grant for the SmartTimers a site audit and inspection is required and provided by contract through MWDOC.

Rotating Nozzle Rebate Program – This rebate program started in 2007 and is offered to both residential and commercial customers. Through this program, site owners will purchase and install rotary nozzles in existing irrigation systems. Following the submittal of a rebate application, water bill, and original purchase receipt, MWDOC will direct a third party installation verification contractor to perform installation verifications on up to 100% of the sites that installed devices. As of FY 2010-11, the total rotating nozzle program participation within the MNWD’s service area, includes 1,644 residential and 7,003 small and 2,945 large commercial customers representing 375 acre-feet of savings, collectively.

Synthetic Turf Rebate Program – Through this program, residential and commercial customers of participating retail water agencies are eligible to receive rebate money for qualifying synthetic turf projects. To date 47,218 sq. ft. of turf grass have been replaced by synthetic turf on residential properties and another 2,420 sq. ft. on commercial properties translating to a combined savings 21.8 acre-feet.

California Friendly Landscape Training (Residential) - The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can

employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The residential training program consists of either a half-day Mini Class or individual, topic-specific, four-hour classes.

4.2.2. DMM 2: Residential Plumbing Retrofit

MNWD participated in MWDOC's regional showerhead distribution program which began in 1991. To determine whether the 75% saturation requirement was achieved within Orange County, a saturation study was conducted by MWDOC and Metropolitan and completed in 2001. Data was obtained through telephone surveys and on-site inspections. Using the saturation findings of the study, MWDOC estimates that today low flow showerhead saturation is at nearly 100% for single-family homes and at 94% for multi-family homes.

Additionally, MNWD participated in MWDOC's regional ultra low flow toilet (ULFT) rebate program which ended in 2009. A total of 7,607 ULFTs were distributed under this program to single-family and multi-family homes representing a cumulative water savings of 2,867 acre-feet. The high efficiency toilet (HET) rebate program has since replaced the ULFT program as discussed under DMM 14.

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

MNWD's prescreening audit has determined that over 90% of total supply into the system (imported water) is typically captured in sales. MNWD estimates that it can account for 95 to 97 percent of water that is purchased from MWDOC. MNWD performs an annual audit of its water purchases, water sales, and non-revenue uses (such as fire fighting, reservoir maintenance, sewer cleaning, etc.). Non-revenue uses and unaccounted for water account for about 7 percent of the total water purchased.

MNWD also maintains a robust leak detection and repair program. Field personnel are trained in detecting leaks and are always cognizant of leaks while performing their regular duties. In the 2009-2010 fiscal year, MNWD performed 73 service line repairs and 29 mainline break repairs. MNWD also has an annual meter testing program that tests all large meters and a portion of small meters for leaks and accuracy.

MNWD has not developed a formal methodology to estimate the water savings attributable to this DMM. There are, however, real water savings as a result of the proactive pre-screening leak detections and repair program which maintains an acceptable non-revenue water of 7%.

4.2.4. DMM 4: Metering with Commodity Rates

MNWD requires individual metering for all new connections and bills by volume-of-use. All existing connections are metered. MNWD currently employs a five tier inclining block rate structure. MNWD is currently considering a proposed change in rate structure

to a Water-Budget-Based Rate Structure to help its customers become part of the solution to conserve water. The proposed rate structure encourages conservation by providing each customer with a personalized amount of water, water budget, designed to meet their specific monthly indoor and outdoor watering needs. MNWD's proposed new rate structure is discussed in more detail under DMM 11.

MNWD has not developed a method to evaluate the effectiveness of this DMM but believes that the existing inclining block rate structure and the proposed water-budget-based rate structure promote customers to be more efficient and have resulted in real water savings.

4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives

MNWD began offering landscape water use surveys to CII customers with mixed-used meters in 2005. MNWD also collaborates with its wholesaler, MWDOC on several large landscape water use efficiency programs. Many of MWDOC's landscape water use efficiency programs target both residential and commercial customers as described under DMM 1. MWDOC also offers programs in Orange County which specifically assist large landscape customers as follows:

Landscape Performance Certification Program (LPCP) – This is a MWDOC-administered program which started in 2004. The LPCP program is a free water management training program sponsored by MWDOC and Metropolitan and offered to CII customers with dedicated irrigation meters. The program also helps create site specific water budgets and track monthly water use for each participating site. As of FY 2010-11, a total of 571 landscape meters are participating in this program. To date, the overall water savings is 1,240 acre-feet.

California Friendly Landscape Training (Professional) – The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the member agencies to encourage participation across the county. The Professional Training Program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class. Each participant receives a bound handbook containing educational materials for each class. These classes are offered throughout the year and taught in both English and Spanish languages.

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

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

MNWD participates in the SoCal Water Smart residential rebate program offered by Metropolitan. This program offers financial incentives to single-family and multifamily residential customers through the form of a rebate.

Orange County residents are eligible to receive an \$85 rebate when they purchase a new High Efficiency Clothes Washer (HECW). This program began in 2001 and is sponsored by MWDOC, Metropolitan, and local retail water agencies. Rebates are available on a first-come, first-served basis, while funds last. Metropolitan recently ended this program in 2011. Applications must have been postmarked by December 6, 2010 to qualify for a rebate. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. To qualify for a rebate, the HECW must have a water factor of 4.0 or less. An HECW with a water factor of 4 will use approximately 15 gallons of water per load compared to a conventional top-loading clothes washer which can use 40 gallons or more per load. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility as additional rebates may be available. As of FY 2010-11, MNWD has given out 5,292 high-efficiency washing machine rebates to its customers. This equates to a water savings of 645 acre-feet.

4.2.7. DMM 7: Public Information Programs

MNWD's Community Relations Program promotes and educates customers on water conservation. Monthly billing newsletters regularly address water conservation issues. Additional public information activities relating to conservation include: billing messages, previous usage shown on water bill, brochures, lawn watering guides, special events, speaker's bureau, website information, etc. Landscape seminars are also offered throughout the year for both residential and commercial users.

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

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

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

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

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

4.2.8. DMM 8: School Education Programs

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

Water Education School Program - One of the most successful and well-recognized water education curriculums in Southern California is MWDOC's Water Education School Program. For more than 30 years, School Program mascot "Ricki the Rambunctious Raindrop" has been educating students in grades K-5 about the water cycle, the importance and value of water, and the personal responsibility we all have as environmental stewards.

The School Program features assembly-style presentations that are grade-specific and performed on-site at the schools. The program curriculum is aligned with the science content standards established by the State of California. Since its inception in 1973,

nearly three million Orange County students have been educated through the School Program.

In 2004, MWDOC formed an exciting partnership with Discovery Science Center that has allowed both organizations to reach more Orange County students each year and provide them with even greater educational experiences in the areas of water and science. Discovery Science Center currently serves as the School Program administrator, handling all of the program marketing, bookings, and program implementation. During the 2010-11 school year, more than 70,000 Orange County students will be educated through the program.

Water Education Poster & Slogan Contest - Each year, MWDOC holds a Water Education Poster and Slogan Contest to increase water awareness. To participate, children in grades K-6 develop posters and slogans that reflect a water awareness message. The goal is to get children thinking about how they can use water wisely and to facilitate discussion about water between children and their friend, parents, and teachers. Each year, more than 1,500 poster and slogan entries are received through the contest.

During a special judging event, approximately 16 posters and 10 slogans are selected as the winners. All of the winners – and their parents, teachers, and principals – are invited to attend a special awards ceremony with Ricki Raindrop at Discovery Science Center. At the awards ceremony, the winners are presented with their framed artwork as well as a custom t-shirt featuring their poster or slogan, a trophy, a certificate, and other fun water-saving prizes.

Orange County Children's Water Education Festival - The largest water education festival of its kind is the annual Children's Water Education Festival (Festival). The Festival is presented by OCWD, the National Water Research Institute, Disneyland Resort, and MWDOC. Each year, more than 5,000 students participate in the Festival over the course of this two-day event. The Festival is currently held at the Richard Nixon Library and Birthplace in Yorba Linda, California.

The Festival presents a unique opportunity to educate students in grades four through six about local water issues and help them understand how they can protect our water resources and the environment. Students attend the Festival with their teacher and classmates, visiting a variety of booths focused on different water-related topics throughout the day. Participating organizations (presenters) engage the students through interactive educational presentations that are aligned with the science content standards established by the State of California.

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

MNWD has met the CUWCC BMP requirement for ranking consumption by CII accounts, with the understanding that MNWD has no industrial accounts. While, MNWD has not conducted surveys, it continues to work with MWDOC to assess the cost effectiveness of CII surveys.

MNWD offers financial incentives under the Save Water Save A Buck Rebate Program which offers rebates for various water efficient devices to CII customers as described below.

Save Water Save a Buck – This program began in 2002 and offers rebates to assist commercial, industrial, and institutional customers in replacing high-flow plumbing fixtures with low-flow fixtures. Facilities where low-flow devices are installed must be located in Orange County. Rebates are available only on those devices listed in Table 4-2 below and must replace higher water use devices. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as is applicable to their site.

Table 4-2: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program

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

As of FY 2010/11, MNWD’s CII customers have installed a total 574 water-saving fixtures representing a water savings of 404 acre-feet. MNWD will continue to educate CII customers to meet the DMM requirements.

Additionally, MWDOC has created regional water use efficiency programs targeting CII customers in Orange County. These programs are available to MWDOC's member agencies as described below.

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

The Program is offered to hotels in MWDOC's service area as identified by retail water agencies. It is anticipated that detailed survey of the indoor and outdoor water using aspects of up to 105 participating hotels will be performed. Participating hotels will receive survey reports that recommend indoor and outdoor retrofits, upgrades, and other changes that should, based on the survey, result in significant water savings. Quantities of each device and associated fixture and installation costs, water savings and payback information based on rebate amount Incentives offered through the Save Water Save A Buck Rebate Program will be augmented using DWR and USBR Water Use Efficiency grant funds to bridge the gap between existing incentives and the actual costs of Hotel Water Survey recommendations. To date, over 24 surveys have been performed county-wide, and over 9,500 water-saving devices have been installed through the program. These devices are saving 351 acre feet per year or 3,510 acre feet county-wide over the ten year device life.

Industrial Process Water Use Reduction Program - The IPWURP provides engineering surveys to identify water saving process improvements in the Orange County industrial customer base. Additionally it provides Engineering Assistance and Financial incentives to help implement the recommendations from those surveys. This is done with funding from DWR, USBR, Metropolitan and MWDOC.

Focused on industrial process water only, the program targets, but is not limited to, the highest water use customers in the following sectors Textile, Metals, Electronics, Laundries, Food Processing, and Pharmaceuticals. The program offers two levels of surveys:

- A preliminary Focused Survey to ascertain the magnitude of water savings possible.
- A Comprehensive Survey which is a more detailed study of the customer's process and includes customized retrofit recommendations, estimated costs, savings in water and sewer discharge, and a simple ROI

Incentives are calculated via a “Pay for Performance” model based on water savings (monitored for 1 year). Qualified participants will receive the lesser of:

- \$4.37 per 1,000 gallons of water saved, or
- Fifty (50) percent of the total amount of retrofit cost

The incentives are paid in two payments:

- The first payment after verification of equipment installation and startup
- The second payment after a one-year monitoring period to measure water savings

Types of projects have included treating and reusing water in manufacturing process or for cooling towers and new wash equipment with upgraded washers, nozzles and automated control systems.

To date the program has identified a water savings potential of 450 million gallons per year within Orange County. The program water savings goal is 80 million gallons per year or 245 acre feet per year.

4.2.10. DMM 10: Wholesale Agency Programs

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

4.2.11. DMM 11: Conservation Pricing

MNWD currently uses a tiered-rate structure with 5 tiers that increase based on increased consumption. MNWD is currently considering a proposed change in rate structure to a Water-Budget-Based Rate Structure. The proposed rate structure encourages conservation by providing each residential customer with a water budget designed to meet their specific indoor and outdoor water needs. The water budget is calculated for residential customers based on a survey MNWD conducted on each customer’s lot size and landscaped area, the number of residents in each home and localized weather data, among other factors. Residential water budgets would vary from month to month based upon the weather. For commercial customers, their water budget would be calculated based on a three-year rolling average of each commercial customer’s monthly use. Details of the proposed rate structure are provided in the Prop 218 Notice in Appendix D.

MNWD has not conducted an evaluation of the water savings attributable to this DMM, however, MNWD will continue to make customers aware of the rate structure and use it as a tool to affect water conservation.

4.2.12. DMM 12: Water Conservation Coordinator

MNWD has maintained a full-time position of conservation coordinator since 2001 and continues to provide support staff as necessary. The Conservation Coordinator is responsible for coordinating all conservation program activities and acts as a liaison with MWDOC, Metropolitan, CUWCC, and others.

4.2.13. DMM 13: Water Waste Prohibition

A Water Conservation Program Resolution was adopted by the Board of Directors in 2008 as Resolution No. 08-46. The resolution establishes water conservation and supply shortage measures that will reduce water consumption within MNWD's service area, enable effective water supply planning, assure reasonable and beneficial use, and prevent waste of water for the purpose of conserving the water supplies of MNWD. The resolution establishes 12 mandatory water conservation rules which are in effect at all times regardless of water shortage conditions including:

1. Limits on watering hours
2. Limits on water duration
3. No excessive water flow or runoff
4. No washing down hard or paved surfaces
5. Obligation to fix leaks, breaks, or malfunctions
6. Re-circulating water required for water fountains and decorative water features
7. Limits on washing vehicles
8. Drinking water served upon request only
9. Commercial lodging establishments must provide option to not launder linen daily
10. No installation of single pass cooling systems
11. No installation of non-re-circulating water systems in commercial car wash and laundry systems
12. Restaurant required to use water conserving dish wash spray valves

The resolution also establishes a mandatory conservation water supply response rules to respond to a water shortage condition. MNWD defines four water supply response levels as described in detail in Section 5.

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

Over the past 19 years, MWDOC has continuously implemented a regional ULFT Rebate and/or Distribution Program targeting single- and multi-family homes in Orange County. Since the end of 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 ULFT portion of this program concluded in June 2009, and over 360,000 ULFTs were replaced in single family and multi-family homes, with an overall county-wide program to date savings of approximately 138,457 acre feet of water. The HET rebate program, which

concluded in 2010, has incentivized over 26,000 devices, with an overall county-wide program to date savings of approximately 3,419 acre-feet.

MNWD has participated in this program from the beginning. To date 7,607 ULFTs and 799 HETs have been installed representing a combined water savings of 2,964 acre-feet. MNWD has met the CUWCC BMP coverage requirements for this DMM.

5. Water Supplies Contingency Plan

5.1. Overview

Recent water supply challenges throughout the American Southwest and the State of California have resulted in the development of a number of policy actions that water agencies would implement in the event of a water shortage. In southern California, the development of such policies has occurred at both the wholesale and retail level. This section describes how new and existing policies that Metropolitan, MWDOC and MNWD have in place to respond to water supply shortages, including a catastrophic interruption and up to a 50 percent reduction in water supply.

As in the past, the MNWD preferred to use voluntary means to achieve its water conservation goals. Any media means available, direct mailings, newsletters, bill stuffers, direct contact with community groups, and information presented to local schools is used to inform MNWD's constituents of the need to conserve water beyond that which is normally practiced. In the past, these measures have been sufficient. Notwithstanding, critical events in the future could require much more stringent means. To this end, MNWD has developed a Water Shortage Contingency Plan designed to enforce mandatory water conservation.

5.2. Shortage Actions

Metropolitan

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

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

In addition, in preparation for the possibility of being unable to meet "firm demands" (non-interruptible supplies) of its member agencies, in February 2008, the Metropolitan's

Board of Directors (Board) adopted the Water Supply Allocation Plan (WSAP), which was subsequently updated in June 2009.

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

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

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

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

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

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

In order to implement the WSAP, the Metropolitan Board makes a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is

determined allocations are necessary, they go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

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

MWDOC

To prepare for the potential allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 member agencies to develop its own Water Supply Allocation Plan (MWDOC WSAP), adopted January 2009, to allocate imported water supplies at the retail level. The MWDOC WSAP lays out the essential components of how MWDOC will determine and implement each member 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 (5) basic steps to determine a retail agency's imported supply allocation.

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

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

Step 3: Calculate Initial Minimum Allocation Based on Metropolitan's Declared Shortage Level – This step sets the initial water supply allocation for each member 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 member agency.

Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts, Conservation, and the Interim Agriculture Water Program – In this step, the model assigns additional water to address disparate impacts at the retail level caused by an

across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

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

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

- **Appeal Process** – An appeals process to provide member agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a member agency’s appeal will be the basis for an appeal to Metropolitan by MWDOC.
- **Melded Penalty Rate Structure** – At the end of the allocation year, MWDOC would only charge a penalty to each member agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a penalty to Metropolitan. Metropolitan enforces allocations to member agencies through a tiered penalty rate structure: penalty rates to a member agency that exceeds its total annual allocation at the end of the twelve-month allocation period, according to a specified rate structure. MWDOC’s penalty would be assessed according to the member agency’s prorated share (acre-feet over usage) of MWDOC penalty amount with Metropolitan. Penalty funds collected by Metropolitan will be invested in water conservation and local resource development.
- **Tracking and Reporting Water Usage** – MWDOC will provide each member agency with water use monthly reports that will compare each member 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 member agencies.

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

Moulton Niguel Water District

The Board of Directors adopted Water Conservation Program Ordinance No. 08-46 on December 18, 2008. Ordinance No. 08-46 establishes a comprehensive staged water conservation program that will encourage reduced water consumption within the MNWD 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 MNWD. Along with permanent water conservation requirements, the MNWD’s Comprehensive Water Conservation Program consists of the following four stages found in Table 5-1. It’s also a response to a reduction in potable water available to the MNWD for distribution to its customers with year round requirements in effect at all times unless a mandatory conservation stage has been implemented by the Board of Directors.

Table 5-1 summarizes water supply shortage stages and conditions as well as the rationing stages as defined in the MNWD Water Conservation Program Ordinance.

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

Stage No.	Water Supply Conditions	% Shortage
1 - Water Watch	Drought or other supply reductions occur resulting in a reasonable probability that there will be supply shortages.	0-10%
2 – Water Alert	Consumer demand reduction of up to 20% is required to have sufficient supplies available to meet anticipated demands.	0-20%
3 – Water Critical	Consumer demand reduction of up to 40% is required to have sufficient supplies available to meet anticipated demands.	0-40%
4 – Water Emergency	Consumer demand reduction of more than 40% is required to have sufficient supplies available to meet anticipated demands.	>40%

5.3. Three-Year Minimum Water Supply

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

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its “preferential right” to water, which grants each member agency a preferential right to purchase a percentage of Metropolitan’s available supplies based on

specified, cumulative financial contributions to Metropolitan. Each year, Metropolitan calculates and distributes each member agency's percentage of preferential rights. However, since Metropolitan's creation in 1927, no member agency has ever invoked these rights as a means of acquiring limited supplies from Metropolitan.

As an alternative to preferential rights, Metropolitan adopted the Water Shortage Allocation Plan (WSAP) in February 2008. Under the WSAP, member agencies are allowed to purchase a specified level of supplies without the imposition of penalty rates. The WSAP uses a combination of estimated total retail demands and historical local supply production within the member agency service area to estimate the firm demands on Metropolitan from each member agency in a given year. Based on a number of factors, including storage and supply conditions, Metropolitan then determines whether it has the ability to meet these firm demands or will need to allocate its limited supplies among its member agencies. Thus, implicit in Metropolitan's decision not to implement an allocation of its supplies is that at a minimum Metropolitan will be able to meet the firm demands identified for each of the member agencies.

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

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

A review of projected SWP allocations from the DWR's State Water Project Delivery Reliability Report 2009 (2009 SWP Reliability Report) was made to estimate a range of conservative supply assumptions regarding the availability of SWP supplies. The 2009 SWP Reliability Report provides estimates of the current (2009) and future (2029) SWP delivery reliability and incorporates regulatory requirements for SWP and CVP

operations in accordance with USFWS and NMFS biological opinions. Estimates of future reliability also reflect potential impacts of climate change and sea level rise.

The analysis assumes a maximum SWP allocation available to Metropolitan of 2,011,500 AF and a Metropolitan storage level of 1,700,000 AF at 2010 year-end. The analysis also assumes a stable water supply from the Colorado River in the amount of 1,150,000 AF through 2015. Although the Colorado River watershed has also experienced drought in recent years, Metropolitan has implemented a number of supply programs that should ensure that supplies from this source are relatively steady for the next three years. Based on estimated “firm” demands on Metropolitan of 2.12 MAF, the annual surplus or deficit was calculated for each year of the three-year period.

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

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

Table 5-2: Metropolitan Shortage Conditions

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

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

uses when considering whether to impose mandatory restrictions. Thus, the estimate of the minimum imported supplies available to MWDOC is 261,577 AF⁶.

MWDOC also has also adopted a shortage allocation plan and accompanying allocation model that estimates firm demands on MWDOC. Assuming MWDOC would not be imposing mandatory restrictions if Metropolitan is not, the estimate of firms demands in MWDOC’s latest allocation model has been used to estimate the minimum imported supplies available to each of MWDOC’s customer agencies for 2011-13. Thus, the estimate of the minimum imported supplies available to MNWD is 34,903 AF⁷.

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

Metropolitan projects that it will meet full service demands through the year 2035. Based on the MWDOC Water Supply Allocation Plan, the MNWD is expected to fully meet demands for the next three years assuming Metropolitan and MWDOC are not in shortage and zero allocations are imposed for Imported Supplies. The Three Year Estimated Minimum Water Supply is listed in Table 5-3.

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

Source	Year 1	Year 2	Year 3
	2010/2011	2011/2012	2012/2013
Local Supplies	9,800	9,800	9,800
Imported Supplies	34,903	34,903	34,903
<i>Total</i>	<i>44,703</i>	<i>44,703</i>	<i>44,703</i>

5.4. Catastrophic Supply Interruption

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

⁶ Metropolitan 2010/11 Water Shortage Allocation Plan model (March 2011)

⁷ MWDOC Water Shortage Allocation model (August 2010)

Metropolitan

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

Water Emergency Response Organization of Orange County

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

Moulton Niguel Water District

In 2005, the Municipal Water District of Orange County (MWDOC) completed a Water Reliability Study reviewing the ability of the South Orange County water agencies, including MNWD, to meet water demands in the event of an interruption of imported water supplies from the Metropolitan Water District of Southern California (Metropolitan). The study assumed several potential interruption scenarios, including planned 7-day outages of Metropolitan treatment facilities per the Metropolitan administrative code and emergency interruptions up to 31 days due to unforeseen circumstances, i.e. earthquake or mechanical failure. A period of 31 days is the maximum time that Metropolitan believes the Diemer Plant would be out of service due to an unforeseen circumstance.

At the time of the analysis in 2005, MNWD was 100% dependent on the Metropolitan importation system for its potable water supply, and as a result of the MWDOC study, MNWD reviewed its ability to sustain various interruption scenarios. The review indicated MNWD's potable water storage capabilities allowed MNWD to sustain an outage of 2.5 days during average-day demand conditions. The MNWD analysis assumed that its customers would provide some level of demand curtailment during the undetermined interruption, with the demand curtailment increasing over time given the extent of the outage.

In response to the 2005 MWDOC study and the MNWD review of its ability to meet potable water demands, the MNWD adopted Resolution No. 08-38 in November 2008. The resolution established a goal of developing adequate capacity and supplies with local facilities and regional projects to sustain a short-term water outage of 31 days during average-day demand conditions. In accomplishing the water system reliability goal outlined in the Resolution, the MNWD will also satisfy the Metropolitan administrative code requirement of a 7-day interruption. As a result, the MNWD has embarked on several projects to meet the Board adopted resolution, including the IRWD Interconnection, the Upper Chiquita Reservoir, and the Baker Water Treatment Plant.

Currently, the IRWD Interconnection Project is on-line with The Upper Chiquita Reservoir scheduled to be on-line in summer 2011. The Baker Water Treatment Plant is projected to be on-line early 2013. Participation in these three projects has extended the number of days the MNWD can meet potable water demands, during interruptions to the imported water supply system, to 3.4 days during average-day demand conditions in 2010, and 23.3 days in 2013 when the remaining two projects are operational. Staff will continue to evaluate opportunities to bring additional cost-effective water system reliability projects on-line as approved by the Board of Directors to meet the Resolution's goal of 31 average days of water system reliability. Description of the reliability projects currently being evaluated are described below:

Irvine Ranch Water District Interconnection Project – Phases A and B (Job No. 2005024)

MNWD worked in conjunction with its neighboring agencies to construct a permanent interconnection and pumping facilities between the IRWD potable water distribution system, the Joint Transmission Main (JTM), and the Aufdenkamp Transmission Main (ATM). This interconnection will allow flows of up to 30 cfs of water from IRWD supply sources to be conveyed through the IRWD system and eventually to the South County agencies via the JTM and the ATM. The connection begins at IRWD's 15 mg Zone 1 reservoir on Sand Canyon Avenue, where a new pump station was recently constructed to pump water from IRWD Zone 1 into an existing pipeline in Sand Canyon Ave. IRWD is the operator of these facilities.

Approximately three miles to the west of the Zone 1 Reservoir, IRWD's 36-inch pipeline in Sand Canyon Avenue crosses the JTM and the ATM between Alton Parkway and the northbound I-405 off ramp at Sand Canyon (adjacent to the Kaiser Permanente Medical Center parking lot). A metering and valve structure was constructed at this location, as well as the interconnections to the JTM and ATM.

Potential subsequent phases of this project includes connections from the IRWD potable water distribution system to the Allen-McCulloch Pipeline (AMP) and the South County Pipeline Pumping Station and potentially, wells in Yorba Linda to be utilized during planned shutdowns or emergency conditions to provide an additional water supply for South County agencies. Future phases will provide additional water reliability beyond current facilities with the additional connection to the AMP, but will not provide additional supply.

Santa Margarita Water District's Upper Chiquita Reservoir Project (Job No. 2008032)

SMWD is in the process of constructing the Upper Chiquita Reservoir, near Oso Parkway and the 241 Toll Road. The capacity of this reservoir will be 750 acre-feet (244 million gallons), with SMWD retaining a capacity of 289 acre-feet. The MNWD will have a maximum capacity of 256 acre-feet (83 million gallons) in the reservoir project. It is anticipated that the Upper Chiquita Reservoir will be completed in summer 2011.

Baker Pipeline Regional Treatment Facility (Job No. 2006071)

The MNWD is participating with IRWD, SMWD, ETWD, and TCWD on the design of a 43.5 cfs potable water treatment facility on the Baker Pipeline. This plant would treat raw water from the Santiago Lateral and/or Irvine Lake. The location of this treatment facility will be the old Baker Water Treatment Plant site formerly operated by Los Alisos Water District (LAWD), which is now a portion of IRWD. The amount of capacity that MNWD will own in this project is 13 cfs.

Existing Interconnections with Santa Margarita Water District

MNWD has two interconnections with SMWD that can allow any excess capacity that SMWD owns in the ETWD R-6 Reservoir to be conveyed to the MNWD during planned or emergency shutdowns or conditions. These interconnections are at the SMWD pumping station at the R-6 Reservoir and the SMWD Plaza Pumping Station near La Paz Road and the OCTA railroad tracks. Use of these interconnections requires approval of SMWD. The maximum daily capacity of these two interconnections is 7.45 million gallons per day (10 cfs).

Cabot FCF Booster Pump Addition (Job No. 2009105)

This project will install a pump at the Cabot Flow Control Facility to allow for the delivery of up to 8 cfs of potable water from the AMP into the CIP to improve the MNWD’s ability to distribute and deliver potable water. The pump addition will allow for increased delivery from the AMP as a result of the MNWD participation in the Baker Water Treatment Plant or in the event of an outage of the South County Pipeline.

Miscellaneous Recycled Water Pipeline Extensions

Several recycled water pipeline projects have been classified as water reliability projects since increasing the use of recycled water in lieu of potable water at landscaping sites has a direct benefit to the MNWD potable water reliability.

MNWD must identify what actions will be taken if there is a catastrophic reduction in water supplies during a regional power outage, an earthquake, or other disaster. Preparation Actions for Catastrophe are summarized in Table 5-4.

Table 5-4: Preparation Actions for Catastrophe

Possible Catastrophe	Preparation Actions
Regional Power Outage	Adopted Resolution No. 08-38 which established a goal of developing adequate capacity and system reliability to sustain a short-term water outage of 31 days. The MNWD has embarked on several projects to meet the Board adopted resolution, including the IRWD Interconnection, Upper Chiquita Reservoir, and Baker Water Treatment Plant.
Earthquake	
Supply Contamination	
Terrorist Act which Interrupts Service	
Other(s)	

5.5. Prohibitions, Penalties and Consumption Reduction Methods

The Water Conservation Program Ordinance No. 08-46 lists water conservation requirements which shall take effect upon implementation by the Board of Directors. These prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement the MNWD’s Water Quality regulations and urban runoff reduction efforts, and enable implementation of the MNWD’s Water Shortage Contingency Measures. Prohibitions include, but are not limited to, restrictions on outdoor watering, washing of vehicles, food preparation establishments, repairing of leaks and other

malfunctions, swimming pools, decorative water features, construction activities, and water service provisions which can be found in Table 5-5.

Table 5-5: Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Irrigation of any vegetated area with potable water is prohibited between the hours of 10:00 am and 5:00 pm except by use of a hand held container, a hand held hose equipped with an automatic shut off device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.	Year Round
Watering of any vegetated area with a device that is not continuously attended is limited to fifteen (15) minutes per day per station. Irrigation systems that emit less than two (2) gallons per hour are exempt.	Year Round
Irrigation of any vegetated area in a manner that causes or allows excessive water flow or run off onto an adjoining sidewalk, driveway, street, alley, gutter, or ditch is prohibited.	Year Round
Washing down hard or paved surfaces is prohibited except by use of a hand held container, hand held hose with a automatic shut off device, or a low volume, high pressure cleaning device equipped to recycle any water used.	Year Round
Excessive use, loss, or escape of potable water through malfunctions in the water user's plumbing or distribution system for any period of time after such escape should have been reasonably discovered and corrected and in no event more than five days of receiving notice from the MNWD, is prohibited.	Year Round
Operating a water fountain or other decorative water feature that does not use re-circulating water is prohibited.	Year Round
Using potable water to wash or clean a vehicle is prohibited except by use of a hand held container, water hose with an automatic shut off device, or a low volume power washer with an automatic shut off device. Commercial car washes are exempt.	Year Round
Eating or drinking establishments are prohibited from offering drinking water to any person unless expressly requested.	Year Round

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Installation of new single pass cooling systems is prohibited.	Year Round
Installation of non-re-circulating potable water systems is prohibited in new commercial conveyor car washes and commercial laundry facilities.	Year Round
Food preparation establishments are prohibited from using non-water conserving commercial dish wash spray valves.	Year Round
All non essential potable water use shall cease.	Level 1
No landscape or open ground is to be watered any time while it is raining.	Level 1
No person shall allow any leaks which they have the authority to eliminate.	Level 1
All district facilities shall eliminate one (1) day of irrigation per week.	Level 1
Construction water for grading must utilize reclaimed or non-potable water.	Level 1
Landscape irrigation is limited no more than three assigned days per week. During the months of November through march, landscape irrigation is limited to no more than once per week. Commercial growers or nurseries are exempt.	Level 2
Using a hose is prohibited to clean structures.	Level 2
Use of temporary fire hydrant meters is prohibited except for fire fighting and related activities, or other activities necessary to maintain the health, safety, and welfare of the public.	Level 2
Potable water prohibited for use on golf course greens. All golf course greens must convert to recycled water within 30 days.	Level 2
Repair all leaks within 72 hours of notification by the MNWD.	Level 2
Landscape irrigation is limited no more than two assigned days per week. During the months of November through march, landscape irrigation is limited to no more than once per week.	Level 3
A permit is required to fill or refill ornamental lakes and ponds, except to the extent needed to sustain aquatic life of significant value.	Level 3
Repair all leaks within 48 hours of notification by the MNWD.	Level 3
Vehicles may only be washed at a commercial car wash equipped with a water recirculation system	Level 3

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
or by high pressure/low volume systems.	
Emptying and refilling of swimming pools and spas, excluding maintenance of water levels due to evaporation, is prohibited except to comply with Federal law.	Level 3
No new water service, temporary meters, or statements of immediate ability to serve or provide potable water service shall be issued unless one or more of the following is satisfied: <ul style="list-style-type: none"> a. A valid unexpired building permit has been issued for the project. b. The project is necessary to protect public health, safety, or welfare. c. The applicant provides evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new potable water meter to the satisfaction of the MNWD. 	Level 3
Consideration of annexations will be suspended.	Level 3
Landscape irrigation is limited no more than one assigned day per week.	Level 4
Repair all leaks within 24 hours of notification by the MNWD.	Level 4
No statements of immediate ability to serve will be issued.	Level 4
The MNWD, at its discretion, may discontinue water service to customers who willfully violate conservation measures.	Level 4

5.6. Impacts to Revenue

A reduction in water use could mean a revenue shortfall for the MNWD. In this case, the MNWD will be required to either raise water rates or impose a drought surcharge. Because anticipating generated revenue is more complicated by raising water rates, the MNWD may elect to impose a drought surcharge. Imposing a drought surcharge will allow the MNWD to recover all of its extraordinary drought-related expenses and lost revenues to meet fixed costs. This method of cost recovery is easy to administer and will allow for more accurate prediction of the additional revenue that will be generated. The MNWD has a Rate Stabilization Fund to assist the MNWD in managing its revenue shortfall. These measures are listed in Table 5-6.

Table 5-6: Proposed Measures to Overcome Revenue Impacts

Name of Measures
Rate Adjustment or Drought Surcharge
Rate Stabilization Fund

5.7. Reduction Measuring Mechanism

Should it become necessary for the MNWD to initiate the actions mandated by the Water Shortage Contingency Plan, the MNWD will constantly be comparing actual demand and supply with projected demand in order to determine if phase adjustments are required. The MNWD utilizes a sophisticated Telemetry and Control System that monitors MNWD consumption in real time. This along with increasing the frequency of its meter reading will allow the MNWD to monitor the effectiveness of its reduction program. Prior to altering the demand reduction, the MNWD will first consider program adjustments such as raising the level of expenditure on public information and/or increasing enforcements efforts. Only if these efforts fail to stabilize the water supply would a phase adjustment be instituted.

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 baseline. MWDOC will also provide quarterly reports on it cumulative retail usage versus its allocation baseline.

These mechanisms are listed in Table 5-7.

Table 5-7: Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type of Data Expected
Telemetry and Control System	Real time MNWD consumption monitoring
Increasing Frequency of meter readings	Monitors effectiveness of reduction program
MWDOC Water Use Monthly Reports	Comparison of cumulative retail usage to allocation baseline.

6. Recycled Water

6.1. Agency Coordination

There are a number of water agencies in south Orange County that provide potable water service as well as wastewater collection and treatment. These agencies depend on imported water supplies for the majority of their potable water supplies due to misfortune of geography in that very little groundwater supplies are available. These agencies have been in the forefront of recycled water development to diversify water supplies. Over the years most agencies have given up individual wastewater treatment facilities and joined SOCWA.

Table 6-1: Participating Agencies

Participating Agencies	Participated
Water Agencies	MWDOC
Wastewater Agencies	SOCWA, MNWD

6.2. Wastewater Description and Disposal

MNWD collects wastewater via a network of gravity lines, lift stations, and force mains throughout the service area. Wastewater is primarily residential in nature. There is very little contribution from commercial and industrial activities as MNWD is primarily residential. Wastewater collected by MNWD is sent to the South Orange County Wastewater Authority (SOCWA) plants for treatment and disposal. SOCWA is a Joint Powers Authority (JPA) that collects, treats, and disposes of wastewater and sludge in south Orange County. MNWD is a member agency of SOCWA. Other SOCWA member agencies include City of Laguna Beach, Trabuco Canyon Water District, Emerald Bay Services District, South Coast Water District, Irvine Ranch Water District, the City of San Clemente, City of San Juan Capistrano and Santa Margarita Water District. Costs for the operation and maintenance of treatment facilities are proportioned to each member agency primarily based on volume deliveries and/or capacity ownership of the plants. The current total average daily flow tributary to the SOCWA J.B.Latham Treatment Plant is 8.5 million gallons per day (MGD). The plant has a design capacity of 13 MGD. The SOCWA Joint Regional Treatment Plant has a capacity of 12 MGD and is currently processing slightly over 10 MGD. Plant 3A has a secondary treatment capacity of 8 MGD and is currently processing 4 MGD. MNWD owns 22.7 MGD of secondary treatment capacity in the SOCWA treatment plants.

The SOCWA plants use a conventional activated sludge process that treats wastewater to secondary treatment standards. The SOCWA plant effluent is disposed by means of ocean outfalls that discharge off the coasts of Dana Point and Laguna Beach.

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

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

Type of Wastewater	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035-opt
Wastewater Collected & Treated in Service Area	29,223	28,149	30,460	31,536	32,249	32,249	32,249
Volume that Meets Recycled Water Standards	8,678	8,887	9,598	15,540	17,021	17,021	17,021

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

Method of Disposal	Treatment Level	Fiscal Year Ending					
		2010	2015	2020	2025	2030	2035-opt
Ocean Outfall	Secondary	19,262	20,862	15,996	15,228	15,228	15,228

6.3. Current Recycled Water Uses

In 1984, the MNWD constructed a 0.6 MGD Advanced Wastewater Treatment Plant (AWT) at the AWMA plant in Laguna Niguel, currently known as SOCWA Joint Regional Wastewater Treatment Plant (JRTP). This tertiary treatment facility produced water for irrigating the El Niguel Country Club in Laguna Niguel and produced approximately 350 acre-feet of water per year for the Country Club.

In 1989, the AWT facility was expanded from 0.6 to 2.4 MGD of tertiary treatment capacity. MNWD now services the El Niguel Country Club, Crown Valley Community Park, Laguna Niguel Regional Park, and several greenbelt areas within the City of Laguna Niguel.

In 1996, MNWD constructed a second AWT at the JRTP with a capacity of 9 MGD along with an underground reclaimed water storage tank.

In 1991, MNWD constructed a 2.4 MGD AWT facility at Plant 3A to provide recycled water for irrigation use. MNWD has expanded its reclaimed water supply capacity to provide maximum-month demands for its reclaimed water distribution system. This system serves two separate hydrologic areas: Laguna HA 1.1 (including the Laguna Niguel, Aliso Viejo, and Dana Point hydrologic sub-areas), and Mission Viejo HA 1.2. The system serves reclaimed water from three water reclamation treatment plants: (1) MNWD Plant 3A AWT, (2) SOCWA JRTP AWT, and (3) South Coast Water District Water Recycling Plant (WRP), which is interconnected to the MNWD distribution system. MNWD currently has 15.2 MGD of tertiary treatment capacity in compliance with Title 22 Recycled Water requirements. MNWD also has 1,000 AF of seasonal storage for its recycled water distribution system.

MNWD has 2.4 MGD capacity in Plant 3A; 11.4 MGD capacity in the SOCWA Joint Regional Treatment Plant; and 1.4 MGD of capacity in the SOCWA Coastal Treatment Plant.

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

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

User Type	Treatment Level	Fiscal Year Ending
		2010
Agriculture		
Landscape	Tertiary	7,779
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Total		7,779

6.4. Potential Recycled Water Uses

MNWD's demands for recycled water continue to increase as new services are continually being connected to the recycled water system. Recycled water represents approximately 21% of MNWD's supply. With the planned expansion of MNWD's recycled water distribution system, recycled water will increase to about 23% of the supply by 2035.

Tables 6-5 and 6-6 present projected recycled water use within MNWD’s service area through 2035. Recycled water use will increase to approximately 23% through the 25-year period, with landscape irrigation as its sole use.

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

User Type	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
Projected Use of Recycled Water	7,779	8,500	8,700	8,900	9,000	9,100

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

User Type	Treatment Level	Fiscal Year Ending				
		2015	2020	2025	2030	2035-opt
Agriculture						
Landscape	Tertiary	8,500	8,700	8,900	9,000	9,100
Wildlife Habitat						
Wetlands						
Industrial						
Groundwater Recharge						
Total		8,500	8,700	8,900	9,000	9,100

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

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

User Type	2005 Projection for 2010	2010 Actual Use
Agriculture		
Landscape	9,800	7,779
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Total	9,800	7,779

6.4.1. Direct Non-Potable Reuse

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

6.4.2. Indirect Potable Reuse

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

6.5. Optimization Plan

In Orange County, the majority of recycled water is used for irrigating golf courses, parks, schools, business and communal landscaping. However, future recycled water use can increase by requiring dual piping in new developments, retrofitting existing landscaped areas and constructing recycled water pumping stations and transmission mains to reach areas far from the treatment plants. Gains in implementing some of these projects have been made throughout the county; however, the additional costs, large energy requirements, and facilities make such projects very expensive to pursue.

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

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

7. Future Water Supply Projects and Programs

7.1. Water Management Tools

Resource optimization such as desalination to minimize the needs for imported water is led by the regional agencies in collaboration with local agencies. With the advancement in Advanced Wastewater Treatment Plants and improvements in the water recycling plant process, along with efforts in reducing water waste, MNWD can meet projected demands with existing facilities and distribution system.

7.2. Transfer or Exchange Opportunities

Metropolitan currently has a tiered unbundled rate structure. Tier 2 of this rate structure increases the cost of supply to a member agency in order to provide a price signal that encourages development of alternative supply sources. One alternative source of supply may be a transfer or exchange of water with a different agency.

The CALFED Bay-Delta Program (CALFED) has helped to develop an effective market for water transactions in the Bay-Delta region. This market is demonstrated by the water purchases made by the Environmental Water Account and Metropolitan in recent years. MWDOC and its member agencies plan to take advantage of selected transfer or exchange opportunities in the future. These opportunities can help ensure supply reliability in dry years and avoid the higher Tier 2 cost of supply from Metropolitan. The continued development of a market for water transactions under CALFED will only increase the likelihood of MWDOC participation in this market when appropriate opportunities arise.

MWDOC will continue to help its member agencies in developing these opportunities and ensure their successes. In fulfilling this role, MWDOC will look to help its member agencies navigate the operational and administrative issues of wheeling water through Metropolitan's water distribution system.

MNWD relies on the efforts of Metropolitan as well as MWDOC to pursue transfer or exchange opportunities. At this time, MNWD is not currently involved in any transfer or exchange opportunities.

7.3. Planned Water Supply Projects and Programs

IRWD Interconnection Project

MNWD is working with neighboring agencies to construct a permanent interconnection and pumping facilities between the agencies and IRWD potable water distribution systems. The interconnection will allow up to 30 cfs of water from IRWD to the South County agencies via the Joint Transmission Main (JTM) and the Aufdenkamp Transmission Main (ATM).

SMWD Upper Chiquita Reservoir Project

SMWD is constructing the Upper Chiquita Reservoir with a capacity of 244 MG (750 AF), near Oso Parkway and the 241 Toll Road. MNWD will have a maximum capacity of 83 MG (256 AF). The reservoir is anticipated to be completed in summer 2011.

Baker Water Treatment Plant

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

Table 7-1: Specific Planned Water Supply Projects and Programs

Project Name	Projected Start Date	Projected Completion Date	Normal-Year Supply to Agency (AF)	Single-Dry Year Yield (AF)	Multiple-Dry-Year 1 Yield (AF)	Multiple-Dry-Year 2 Yield (AF)	Multiple-Dry-Year 3 Yield (AF)
SMWD Upper Chiquita Reservoir Project	2008	2011	256	256	256	256	256
Baker Water Treatment Plant	2009	2013	9,400	9,400	9,400	9,400	9,400

7.4. Desalination Opportunities

Until recently, seawater desalination has been considered uneconomical to be included in the water supply mix. However, recent breakthroughs in membrane technology and plant siting strategies have helped reduce desalination costs, warranting consideration among alternative resource options. However, the implementation of large-scale seawater desalination plants faces considerable challenges. These challenges include high capital

and operation costs for power and membrane replacement, availability of funding measures and grants, addressing environmental issues and addressing the requirements of permitting organizations, such as the Coastal Commission. These issues require additional research and investigation.

MWDOC has been in the process of studying the feasibility of ocean desalination on behalf of its member agencies. MWDOC is reviewing and assessing treatment technologies, pretreatment alternatives, and brine disposal issues, and identifying and evaluating resource issues such as permitting, and the regulatory approvals (including CEQA) associated with the delivery of desalinated seawater to regional and local distribution system.

MWDOC is also assisting its member agencies in joint development of legislative strategies to seek funding in the form of grant and/or loans, and to inform decision-makers of the role of seawater desalination in the region’s future water supplies. Observing the strategies and outcomes of other agency programs (such as that in Tampa Bay, Florida) to gain insights into seawater desalination implementation and cost issues is also being undertaken.

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

Table 7-2: Opportunities for Desalinated Water

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

7.4.1. Groundwater

MNWD is participating in the update of the San Juan Basin Authority Groundwater Management Plan to identify potential projects that could provide local groundwater sources to MNWD.

7.4.2. Ocean Water

Huntington Beach Seawater Desalination Project – Poseidon Resources LLC (Poseidon), a private company, has proposed development of the Huntington Beach Seawater Desalination Project to be located adjacent to the AES Generation Power Plant

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

Poseidon had received non-binding Letters of Intent (LOI) from the Municipal Water District of Orange County and 17 retail water agencies to purchase a total of approximately 72 MGD (88,000 AFY) of Project supplies. On August 21, 2009, MNWD signed a non-binding LOI for 4.5 MGD (5,000 AFY) of Project supplies.

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

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

South Orange Coastal Desalination Project – MWDOC is proposing a desalination project in joint with Laguna Beach County Water District, Moulton Niguel Water District, City of San Clemente, City of San Juan Capistrano, South Coast Water District, and Metropolitan. The project is to be located adjacent to the San Juan Creek in Dana Point just east of the transition road from PCH to the I-5. The project will provide 15 MGD (16,000 AFY) of drinking water and will provide up to 30% of its potable water supply to the participating agencies. Currently, MNWD is a 20% participant in the project with a preliminary water supply of 3 MGD (3,360 AFY).

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

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

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

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

8. UWMP Adoption Process

8.1. Overview

Recognizing that close coordination among other relevant public agencies is the key to the success of its UWMP, MNWD worked closely with other entities such as MWDOC to develop and update this planning document. MNWD also encouraged public involvement through the holding of a public hearing during which participants learned and asked 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 MNWD and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

Table 8-1: External Coordination and Outreach

External Coordination and Outreach	Date	Reference
Encouraged public involvement (Public Hearing)	June 2, 2011 & June 9, 2011	Appendix F
Notified city or county within supplier's service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	March 18, 2011	Appendix E
Held public hearing	June 16, 2011	Appendix F
Adopted UWMP	June 16, 2011	Appendix G
Submitted UWMP to DWR (no later than 30 days after adoption)	July 16, 2011	
Submitted UWMP to the California State Library and city or county within the supplier's service area (no later than 30 days after adoption)	July 16, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	August 15, 2011	

This UWMP was adopted by the Board of Directors on June 16, 2011. A copy of the adopted resolution is provided in Appendix G.

A change from the 2004 legislative session to the 2009 legislative session required MNWD to notify any city or county within its service area at least 60 days prior to the public hearing. MNWD sent a Letter of Notification to the County of Orange and all

cities in its service area on March 18, 2011 that it is in the process of preparing an updated UWMP (Appendix E).

8.2. Public Participation

MNWD encouraged community and public interest involvement in the plan update through a public hearing and inspection of the draft document. Public hearing notifications were published in a local newspaper, the Orange County Register. A copy of the published Notice of Public Hearing is included in Appendix F. The hearing provided an opportunity for all residents and employees in the service area to learn and ask questions about their water supply in addition to MNWD's plans for providing a reliable, safe, high-quality water supply. Copies of the draft plan were made available for public inspection at the MNWD Administrative offices.

8.3. Agency Coordination

All of MNWD's water supply planning relates to the policies, rules, and regulations of its regional and local water providers. MNWD is dependent on imported water from the Metropolitan through MWDOC, its regional wholesaler. MNWD is also a member agency of SOCWA, a Joint Powers Authority which collects and treats wastewater and provides recycled water to agencies in South Orange County. In turn, MNWD serve potable water and recycled water to the Cities of Laguna Hills, Laguna Niguel, Mission Viejo, Aliso Viejo, San Juan Capistrano and Dana Point. As such, MNWD involved these water providers and cities in the development of its 2010 UWMP at various levels of contribution as summarized in Table 8-2.

Table 8-2: Coordination with Appropriate Agencies

	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
City of Laguna Niguel					X	X	
City of Laguna Hills					X	X	
City of Mission Viejo					X	X	
City of Dana Point					X	X	
City of Aliso Viejo					X	X	
City of San Juan Capistrano					X	X	
County of Orange					X	X	
MWDOC	X				X	X	
SOCWA					X	X	

As a member agency of MWDOC, MWDOC provided assistance to MNWD’s 2010 UWMP development by providing much of the data and analysis such as, population projections, demand projections, and SBx7-7 modeling. MNWD’s UWMP was developed in collaboration with MNWD’s 2010 Long Range Plan, MWDOC’s 2010 RUWMP to ensure consistency between the two documents as well as Metropolitan’s 2010 RUWMP and 2010 Integrated Water Resources Plan.

MNWD also contacted wastewater collection and treatment providers and other water agencies within SOCWA service area for data on recycled water and associated projects.

General Plans of the Cities of Laguna Hills, Laguna Niguel, Mission Viejo, Aliso Viejo, San Juan Capistrano and Dana Point, within the MNWD service area are the source document for MNWD in its assessment of its water resource needs. UWMP also should

serve as a source document for the cities as they prepare their General Plans. General Plan and UWMP may be linked, as their accuracy and usefulness are interdependent.

8.4. UWMP Submittal

8.4.1. Review of Implementation of 2005 UWMP

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

Comparison of 2005 Planned Water Conservation Programs with 2010 Actual Programs

As a signatory to the MOU regarding urban water use efficiency, MNWD's commitment to implement BMP-based water use efficiency program continues today. For MNWD's specific achievements in the area of conservation, please see Section 4 of this Plan.

Comparison of 2005 Projected Recycled Water Use with 2010 Actual Use

Current recycled water projections for MNWD in 2010 are about 21% less than previously forecasted for 2010 in the 2005 UWMP, as illustrated in Table 6-7.

8.4.2. Filing of 2010 UWMP

The Board of Directors reviewed the Final Draft Plan on June 16, 2011. The seven-person Board of Directors approved the 2010 UWMP on June 16, 2011. See Appendix G for the resolution approving the Plan.

By July 16, 2011, MNWD's Adopted 2010 UWMP was filed with DWR, California State Library, County of Orange, and cities within its service area.

Appendices

- A. Urban Water Management Plan Checklist
- B. Urban Water Management Planning Act
- C. Calculation of Dry Year Demands
- D. Resolution No. 08-46, Proposition 218 Letter
- E. 60 Day Notification Letters
- F. Public Hearing Notice
- G. Copy of Plan Adoption
- H. Orange County 20x2020 Regional Alliance Letter

Appendix A

Urban Water Management Plan Checklist

Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 8.3
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Appendix E
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Section 8.4
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 8.4
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 8.2
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Appendix F
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix G
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 8.4

No.	UWMP requirement a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 8.4
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 8.4
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 1.3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.2.1
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M	Section 2.2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.3
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 2.4.4 Section 2.4.5
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Appendix F Section 2.4.6

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Not applicable
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 2.3
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 2.5
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 2.5.2
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 3.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 3.3
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Not applicable
16	Describe the groundwater basin.	10631(b)(2)		Section 3.3
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Not applicable

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 3.3
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		not applicable
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Not applicable
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Not applicable
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 7.2
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 7.3
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 7.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 6.1
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 6.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 6.2
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 6.3
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 6.4
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 6.4
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 6.5
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 6.5
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING ^b				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 3
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 3.5.1
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 3.5.2
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.3
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.4
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.5
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.5
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.6
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix D
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.7
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	Four years 2010, 2015, 2020, 2025, and 2030	Section 3.5.2.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 3.5.3 Section 3.5.4 Section 3.5.5
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measure is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 4
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 4
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 4
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Not applicable
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	not applicable

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review

Appendix B

Urban Water Management Planning Act

CALIFORNIA WATER CODE DIVISION 6

PART 2.6. URBAN WATER MANAGEMENT PLANNING

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

CHAPTER 1.	GENERAL DECLARATION AND POLICY	10610-10610.4
CHAPTER 2.	DEFINITIONS	10611-10617
CHAPTER 3.	URBAN WATER MANAGEMENT PLANS	
Article 1.	General Provisions	10620-10621
Article 2.	Contents of Plans	10630-10634
Article 2.5.	Water Service Reliability	10635
Article 3.	Adoption and Implementation of Plans	10640-10645
CHAPTER 4.	MISCELLANEOUS PROVISIONS	10650-10656

WATER CODE

SECTION 10610-10610.4

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

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

- (1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
- (2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- (3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
- (4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
- (5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
- (6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
- (7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.
- (8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
- (9) The quality of source supplies can have a significant impact

on water management strategies and supply reliability.

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

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

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

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

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

WATER CODE

SECTION 10611-10617

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

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

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

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

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

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

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

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

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

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

WATER CODE

SECTION 10620-10621

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

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

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

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

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

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

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

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

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

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

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

WATER CODE

SECTION 10630-10634

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

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

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

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

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

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

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

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

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

- (A) An average water year.
- (B) A single dry water year.
- (C) Multiple dry water years.

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

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

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

- (A) Single-family residential.
- (B) Multifamily.
- (C) Commercial.
- (D) Industrial.
- (E) Institutional and governmental.
- (F) Landscape.
- (G) Sales to other agencies.
- (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

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

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

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

- (A) Water survey programs for single-family residential and multifamily residential customers.
- (B) Residential plumbing retrofit.
- (C) System water audits, leak detection, and repair.
- (D) Metering with commodity rates for all new connections and retrofit of existing connections.
- (E) Large landscape conservation programs and incentives.
- (F) High-efficiency washing machine rebate programs.
- (G) Public information programs.
- (H) School education programs.
- (I) Conservation programs for commercial, industrial, and institutional accounts.

- (J) Wholesale agency programs.
- (K) Conservation pricing.
- (L) Water conservation coordinator.
- (M) Water waste prohibition.
- (N) Residential ultra-low-flush toilet replacement programs.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(i) Compliance on an individual basis.

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

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

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

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

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

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

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

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

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

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

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

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

sequence for the agency's water supply.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

WATER CODE

SECTION 10635

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

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

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

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

WATER CODE

SECTION 10640-10645

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

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

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

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

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

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

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

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

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

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

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

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

WATER CODE

SECTION 10650-10656

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

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

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

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

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

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

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

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

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

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

Appendix C

Calculation of Dry Year Demands

Demand “Bump” Factors for 2010 UWMP

Description of Methodology

Water agencies must develop estimates of the impacts of single dry years (Single-Dry) and multiple consecutive dry years (Multiple-Dry) on both supplies and demands in future years. In these cases, demands increase somewhat above the normal or average level. The increase can be expressed as a percent “bump” up from the normal level. For example, if dry year demand was 105 percent of normal, this would be a 5% “bump”. As the methodology to estimate the Single-Dry and Multiple-Dry “bumps” was developed, several issues needed to be decided, as follows:

1. The methodology used existing data from MWDOC records for each agency, to allow the estimates to reflect the characteristics and differences of demands relative to the makeup of each retail entity. The overall MWDOC estimate was developed from a weighted sum of all of OC’s agencies.
2. Total potable demands, including agricultural demands, were used to derive the “bumps” because Orange County agencies have opted to have water that is used for agricultural uses be considered as full service demands. Non-potable demands are included; these demands will be met with non-potable supplies.
3. The methodology focused on per-capita usage (in units of AF/capita) because this removes the influence of growth from the analysis. Overall population growth in Orange County has been about 1% per year over the past two decades, creating about a 20% increase in demand over two decades. Some of the agencies have had even higher growth.
4. The period that was used for the analysis was limited to FY 1992-93 thru FY 2008-09 because fiscal years 1991-92 and 2009-10 were years of extraordinary conservation-- pricing disincentives for using over the allocated amounts were implemented in order to curtail demands-- and so these years were not considered. The Orange County total per-capita water usage in the period FY 1992-93 thru FY 2008-09 is plotted in Figure 1. Per-capita water use in Orange County has been on a decreasing trend in recent years as shown by the trend line in Figure 1. The downward trend is likely due to water use efficiency efforts, principally the plumbing codes since 1992 that have required low-flush toilets in all new construction and prohibited the sale of high-flush toilets for replacement purposes. Because of this drop in per-capita usage over time, the more recent data is a better predictor of future usage than the earlier data. Therefore, we narrowed the focus to the period FY 2001-02 thru FY 2008-09.
5. **Single-Dry “Bump” Methodology:** Per-capita usage for each participant agency from FY 2001-02 thru FY 2008-09 is shown in Table 1. The Single-Dry Bump for each agency was derived using the highest per-capita usage in the period, divided by average per-capita usage for that period. Because of suspect data for Fountain Valley and Santa Ana, the highest year data was eliminated and the second-highest usage in the period was used (when data was suspect, it was also removed from the average for the agency). The resulting Single-Dry “bumps” are shown in Table 2. The OC-average Single-Dry “bump” came to 6.6%
6. **Multiple-Dry “Bump” Methodology:** DWR guidelines recommend that “multiple” years is three years. There are various methods that can be used to derive demand “bumps” for those three years. The same “bump” can be used for all three years, or different “bumps” can be assumed for each of the three years. A pattern can be selected based on historical demand data or on historical water supply data or on another basis. MWDOC selected a Multiple-Dry Bump as the same as the Single-Dry Bump for each agency. This means having three highest-demand years in a row. This is conservative because it would be extremely unlikely for three driest years to occur in a row. However, it should be noted that future demand in any particular year depends on other factors in addition to rainfall, such as the economic situation, and cloudiness, windiness, etc. The OC-average Multiple-Dry “bump” came to 6.6%.

Figure 1
Per-Capita Water Use in Orange County (AF/person)

FY Ending	OC Actual AF/person	Least Sq AF/person	approx high	approx "bump"
1993	0.223327	0.233	0.250	7%
1994	0.223528	0.232		
1995	0.221986	0.230		
1996	0.235919	0.229		
1997	0.244071	0.228		
1998	0.217014	0.226		
1999	0.228797	0.225		
2000	0.242408	0.224		
2001	0.223537	0.222		
2002	0.228534	0.221		
2003	0.214602	0.219		
2004	0.222155	0.218		
2005	0.204941	0.217		
2006	0.207720	0.215		
2007	0.223599	0.214		
2008	0.211873	0.212		
2009	0.202396	0.211	0.225	7%

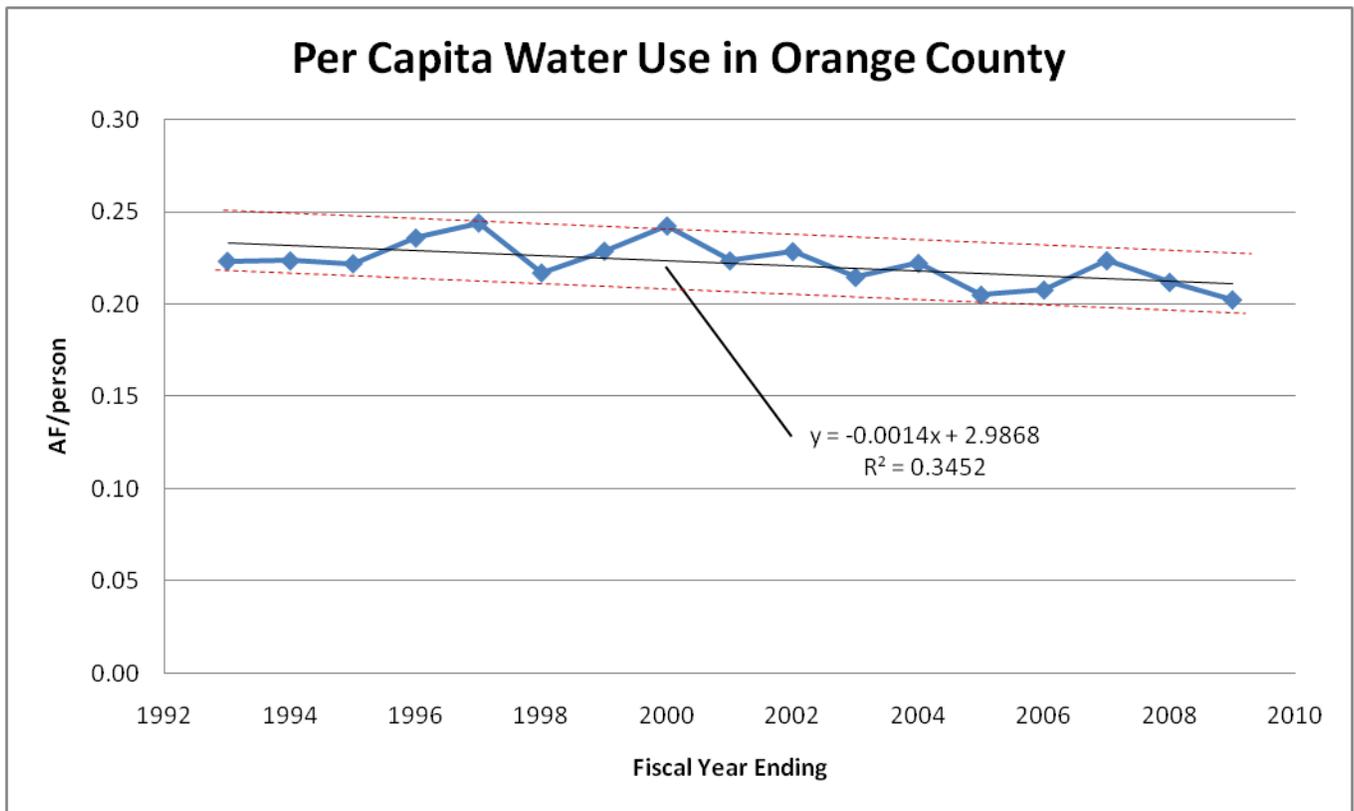


Table 1. Per-Capita Retail Water Usage by Retail Water Agency [1] [2]

Fiscal Year ->	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	Per Capita Retail Water Usage (AF/person)							
Moulton Niguel WD	0.26103	0.24574	0.25153	0.22990	0.23678	0.26573	0.25195	0.23988

[1] Retail water usage (includes recycled water and Agricultural usage) divided by population.

[2] Population is for Jan. 1 of each fiscal year ending. Source: Center for Demographic Research, CSU Fullerton.

Table 2

Demand Increase "Bump" Factors for Single Dry Years and Multiple Dry Years
for OC Water Agencies participating in MWDOC's 2010 UWMP group effort

	Single	Multiple	
Moulton Niguel WD	7.2%	7.2%	
OC Average	6.6%	6.6%	weighted average of all OC water agencies

Appendix D

Resolution No. 08-46, Proposition 218 Letter

Resolution No. 08-46

RESOLUTION NO. 08-46

RESOLUTION OF THE BOARD OF DIRECTORS OF MOULTON NIGUEL WATER DISTRICT ADOPTING WATER CONSERVATION PROGRAM UNDER MOULTON NIGUEL WATER DISTRICT RULES AND REGULATIONS FOR WATER SERVICE

WHEREAS, pursuant to California Water District Law, Section 34000 *et seq.* of the California Water Code, the Moulton Niguel Water District (“District”) has the authority to adopt rules and regulations for the provision of water service and facilities;

WHEREAS, although the Board of Directors of the District (“Board”) previously adopted voluntary water conservation measures during drought conditions to reduce potable water consumption that resulted in some reduction in water usage by District’s customers, active water conservation measures at all times are essential to ensure a reliable minimum water supply to meet current and water supply needs and prohibit water waste in the District;

WHEREAS, the Board makes the following findings of necessity:

1. The District depends on imported water from Northern California and the Colorado River to meet approximately 80% of its supply demand, with the balance of the demand being met by local water recycling.
2. The main source of supply described under paragraph 1 has been severely impacted by dry conditions, lower-than-normal snow pack, environmental constraints in the Sacramento San Joaquin Bay-Delta (Bay-Delta) region and prolonged drought along the Colorado River.
3. Recent court rulings have further restricted water deliveries from the Bay-Delta and will require even greater withdrawals from water storage reserves to offset water lost as a result of the court rulings.
4. The District has invested and continues to invest in research and technology to develop new sources of water such as water recycling and desalination to meet demands.
5. Article X, Section 2 of the California Constitution, and implementing Water Code Section 100, declare that the general welfare requires that water resources of the State be put to beneficial use, waste or unreasonable use or unreasonable method of use of water be prevented, and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof.
6. California Water Code Section 375 *et seq.* authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.

7. The District previously adopted its Urban Water Management Plan that includes water conservation as a necessary and effective component of its programs to provide a reliable supply of water to within its service territory. The Urban Water Management Plan also includes a Water Shortage Contingency Plan of actions to be taken in response to water supply shortages. The draft "*Water Conservation Program, Section N of the Districts Rules and Regulations for Water Service*" ("Water Conservation Program") presented to the Board at this meeting is consistent with the Urban Water Management Plan, and necessary to manage the District's potable water supply in the short and long-term and to avoid or minimize the effects of drought and water supply shortages within the District.

WHEREAS, the purpose of the prohibitions against water waste, the water conservation measures and the progressive restrictions on water use and method of use identified by the Water Conservation Program is to provide certainty to water users in the District and enable the District to control water use, provide water supplies, and plan and implement water management measures in a fair and orderly manner for the benefit of its customers and the public;

WHEREAS, the Board previously reviewed a draft of the Water Conservation Program at a workshop held on November 14, 2008, and thereafter by adoption of Resolution No. 08-42 entitled "Resolution of the Board of Directors of Moulton Niguel Water District Calling a Public Hearing on Proposed Water Conservation Program under Moulton Niguel Water District Rules and Regulations for Water Service," on November 20, 2008, called a hearing to consider public comments from customers and other interested persons on the Water Conservation Program in accordance with Water Code 375;

WHEREAS, the Water Conservation Program was made available for public inspection at the District offices and posted in various locations accessible to the public within the District, and notice of a public hearing thereon was given by publication on December 4, 2008, in the *Orange County Register*, and by posting at the District main office;

WHEREAS, the duly noticed public hearing was held on the date, and at the time, set forth in the notice of hearing, and all customers and other persons interested were given an opportunity to be heard concerning any matter set forth in the Water Conservation Program; and

WHEREAS, pursuant to Water Code Sections 375, after holding a noticed public hearing and making appropriate findings of necessity for the adoption of a water conservation program, the District may adopt and enforce water conservation program rules and regulations, including emergency water shortage response terms.

NOW, THEREFORE, the Board of Directors of the Moulton Niguel Water District does hereby **RESOLVE, DETERMINE and ORDER** as follows:

Section 1. The Board finds the foregoing Recitals, facts and findings of necessity, which are incorporated herein by this reference, support the adoption of the Water Conservation Program in the form of Attachment 1 to this Resolution in order to establish water conservation and supply shortage measures that will reduce water consumption within the District, enable

effective water supply planning, assure reasonable and beneficial use, and prevent waste of water for the purpose of conserving the water supplies of the District. The Water Conservation Program is intended solely to further the conservation of water. It is not intended to implement any provision of federal, State, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff, which are within the local jurisdiction of the Regional Water Quality Control Board, and set forth in stormwater ordinances and stormwater management plans.

Section 2. The Board approves and adopts the Water Conservation Program, such regulations to be incorporated as *Section N* of the *District's Rules and Regulations for Water Service*.

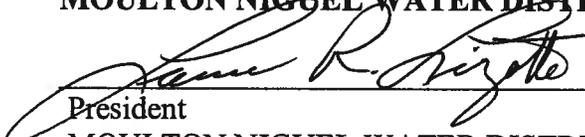
Section 3. The Board intends to review the Water Conservation Program periodically, and specifically within approximately four months from the date of this Resolution, for consideration of any revisions or changes to the terms of the program that may be advisable, based on the District's experience in the implementation of the conservation measures under the program; provided, the Board recognizes that, generally, the prohibitions against waste set forth in Section I are required best management practices and responsive to current agreements to which the District is a party.

Section 4. The Secretary is hereby ordered and directed to publish this Resolution in full, including Attachment 1, within ten days hereof, in a newspaper of general circulation within the District pursuant to California Water Code Section 376, and to post a certified copy of this Resolution at the District main office.

Section 5. The provisions of this Resolution shall be effective immediately upon adoption.

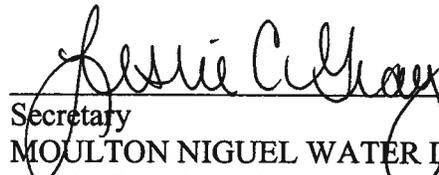
ADOPTED, SIGNED and APPROVED this 18th day of December, 2008.

MOULTON NIGUEL WATER DISTRICT



President

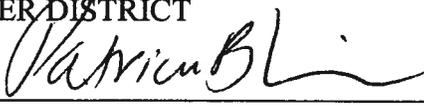
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof



Secretary

MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

APPROVED AS TO FORM:
BOWIE, ARNESON, WILES & GIANNONE
Legal Counsel - MOULTON NIGUEL
WATER DISTRICT

By 
Patricia B. Giannone

ATTACHMENT 1
SECTION "N"
OF THE RULES AND REGULATIONS

Water Conservation Program

Moulton Niguel Water District ("District") has adopted this Water Conservation Program ("Program") for the reasonable and beneficial use of the water resources of the State of California to the fullest extent possible, and for the avoidance of waste or unreasonable use of the natural resources of the State and the District. The following conditions are precedent to any obligation of the District to provide water or sewer service.

No water shall be provided by the District for internal or external use to any residential, commercial, industrial, agricultural, recreational, governmental, or public building or structure of any kind which is constructed or altered and in which either internal or external irrigation or domestic water piping or water fixtures are to be installed, extended, or altered in any way, including, but not limited to, any plumbing, water piping, or water fixtures for which a construction permit must be obtained, or for which District approval of plans and service applications are required, unless the new, extended, or altered water using facilities conform to the requirements and standards of the Rules and Regulations.

The required water conservation devices and standards of the District are those set forth on Exhibit "F" to these Rules and Regulations. Nothing provided in this Program shall be deemed to relieve any person from compliance with the local or State plumbing code or any other State or local plumbing or building requirements.

The following terms shall have the meanings defined below.

1. "Person" is any individual, firm, partnership, association, company, or organization of any kind, or any other user of water supplied by the District.
2. "Potable Water" means water suitable for drinking or any water other than Recycled Water.
3. "Recycled Water" means the reclamation and reuse of non-potable water for beneficial use.
4. "Water waste" is the use of any water in indoor or outdoor areas resulting in runoff, breaks, or leaks in the water delivery system, which has no beneficial use.

Effective Date, Application

This Program is effective immediately upon adoption by the District Board of Directors (“Board”) or as otherwise established by State law for the District.

The provisions of this Program apply to any person in the use of any water provided by District.

The prohibited uses of water under this Program do not apply to the use of water necessary for public health and safety or for essential governmental services such as police, fire, and other similar emergency services.

The provisions of this Program do not apply to the use of Recycled Water. However, use of Recycled Water is covered by the District’s Rules and Regulations.

SECTION I. MANDATORY WATER CONSERVATION RULES – PROHIBITION AGAINST WASTE

In order to comply with requirements of State legislation for “Best Management Practices” pertaining to urban water conservation guidelines, the following mandatory water conservation rules have been established to reduce water consumption and preserve the District’s water supply. The requirements below shall apply to all customers at all times, regardless of whether any declared water shortage condition is in effect under Section II.

1. **Limits on Watering Hours:** Watering or irrigation of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 10:00 a.m. and 5:00 p.m. on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
2. **Limit on Water Duration:** Watering or irrigation of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or watering device that is not continuously attended is limited to no more than 15 minutes watering per day per station. This subsection does not apply to landscape irrigation systems that exclusively use very low-flow irrigation systems where no emitter produces more than two gallons of water per hour.
3. **No Excessive Water Flow or Runoff:** Watering or irrigation of any lawn, landscape or other vegetated area in a manner that causes or allows potable excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.
4. **No Washing Down Hard or Paved Surfaces:** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held

hose equipped with a positive water shut-off device or a low-volume, high-pressure cleaning machine equipped to recycle any water used.

5. **Obligation to Fix Leaks, Breaks or Malfunctions:** Excessive use, loss or escape of potable water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected and in no event more than five days of receiving notice from the District, is prohibited.
6. **Re-circulating Water Required for Water Fountains and Decorative Water Features:** Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.
7. **Limits on Washing Vehicles:** Using potable water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive water shut-off nozzle or a low volume power washer with a positive water shut-off nozzle. This subsection does not apply to commercial car washes.
8. **Drinking Water Served Upon Request Only:** Eating or drinking establishments, including but not limited to a restaurant, hotel, café, cafeteria, bar, club or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.
9. **Commercial Lodging Establishments Must Provide Option to Not Launder Linen Daily:** Hotels, motels and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each bathroom using clear and easily understood language.
10. **No Installation of Single Pass Cooling Systems:** Installation of single pass cooling systems is prohibited in buildings requesting new potable water service.
11. **No Installation of Non-re-circulating Water Systems in Commercial Car Wash and Laundry Systems:** Installation of non-re-circulating potable water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.
12. **Restaurants Required to Use Water Conserving Dish Wash Spray Valves:** Food preparation establishments, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.

The foregoing rules are subject to the enforcement provisions under Section II for Water Supply Response Level 1 Water Watch Condition.

II. MANDATORY CONSERVATION WATER SUPPLY RESPONSE RULES

Should the conservation measures above be inadequate to protect the District's potable water supply, the District Board reserves the right to implement further mandatory conservation measures as outlined in the following Water Supply Response Rules.

These rules are necessary to respond to any significant reductions to the District's water supply as a result of drought, natural disasters, and planned or unplanned potable water outages. Upon declaration of the District's water supplier, or upon the District's own determination, that a drought or water shortage condition exists, or upon failure or shutdown of regional importation or local distribution systems or facility(ies) (i.e. main break, reservoir, pipeline) the following water use restrictions shall apply to all use of potable water for as long as drought or potable water shortage conditions exist. The provisions of these potable water use restrictions shall apply to all persons using potable water within the District, regardless of whether any person using potable water shall have a contract for water service.

Nothing in these rules is intended to affect or limit the ability of the District to declare and respond to an emergency, including an emergency that affects the ability of the District to supply water.

Provisions in the District's Urban Water Shortage Contingency Plan (District Resolution No. 92-2) identify potable water demand reductions of up to 50%. These rules further develop the guidelines set forth in the four stages of the Urban Water Shortage Contingency Plan. While the State recognizes the District's extensive Recycled Water Program as being equivalent to a 20% reduction in potable demand in the Urban Water Shortage Contingency Plan, the District's water supplier does not give conservation credit for recycled water, and these rules reflect this fact.

Water Supply Response Level	Use Restrictions	Conservation Savings	MNWD Urban Water Shortage Contingency Plan
1 – Water Watch	Mandatory	Up to 10%	Level 1
2 – Water Alert	Mandatory	Up to 20%	Level 2
3 – Water Critical	Mandatory	Up to 40%	Level 3
4 – Water Emergency	Mandatory	Above 40%	Level 4

Water Supply Response Level 1 – Water Watch Condition

A Water Supply Response Level 1 condition is also referred to as a "Water Watch" condition. A Level 1 condition applies when drought or other supply reductions occur resulting in a reasonable probability that there will be supply shortages and that additional consumer demand reduction of up to 10% is required to ensure that sufficient supplies will be available to meet anticipated demands. The General Manager shall declare the existence of a Water Supply Response Level 1 and take action to implement the Level 1 conservation measures identified in this Program.

During a Level 1 Water Watch condition, the District will increase its public education and outreach efforts to emphasize increased public awareness of the need to implement the following mandatory water conservation measures:

1. All persons using District water shall comply with Rules 1 through 12 of Section I Mandatory Water Conservation Rules – Prohibition Against Waste.
2. All District staff will be alerted to the Level 1 conditions, supplied with educational material, and directed to actively intervene and educate the public when excessive use is observed.
3. All non-essential potable water use shall cease.
4. No person shall allow lawns, groundcover, shrubbery, other landscape material, or open ground to be watered at anytime while it is raining. Automatic irrigation controllers may be turned off manually or connected to a rain shutoff device.
5. No person shall permit water to leak which he or she has the authority to eliminate.
6. Property owners within the District who are installing new landscaping or re-landscaping existing properties are encouraged to utilize drought-tolerant plants to assist in decreasing demands on irrigation water.
7. District staff shall limit non-essential potable water use. All District facilities shall eliminate one day of irrigation per week.
8. Property owners who have a swimming pool or a spa are encouraged to cover said facilities to minimize water loss due to evaporation.
9. Repair all water leaks within five days of notification by the District unless other arrangements are made with the General Manager.
10. Construction water for grading must utilize recycled or non-potable water from a designated location to be determined by the District.

Water Supply Response Level 2 – Water Alert Condition

A Water Supply Response Level 2 condition is also referred to as a “Water Alert” condition. A Level 2 condition applies when consumer demand reduction of up to 20% is required to have sufficient supplies available to meet anticipated demands. The District Board shall adopt a resolution declaring the existence of a Water Supply Response Level 2 condition and implementing the mandatory Level 2 conservation measures identified in this Program.

All persons using District water shall comply with Level 1 “Water Watch” conservation practices during a Level 2 “Water Alert”, and shall also comply with the following additional mandatory conservation measures:

1. Limit residential and commercial landscape irrigation to no more than three assigned days per week on the schedule below or as otherwise established by the General Manager and posted by the District. During the months of November through March, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District. This measure shall not apply to commercial growers or nurseries to sustain plants, trees, shrubs, crops or other vegetation intended for commercial sale.

Residential Irrigation

Aliso Viejo & Mission Viejo

Monday & Thursday &
Saturday or Sunday

Dana Point, Laguna Hills & Laguna Niguel

Tuesday & Friday &
Saturday or Sunday

Commercial Irrigation

Monday, Wednesday, & Friday

2. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by Section 1 above, by using a bucket, hand-held hose with positive shutoff nozzle, or low-volume non-spray irrigation.
3. At the discretion of the General Manager, hire, divert, or employ additional staff and volunteers to monitor potable water usage, provide assistance to potable water users to reduce potable water consumption, and to monitor the enforcement of the requirements, restrictions, and priorities adopted by the District Board in response to the potable water shortage condition.
4. Cleaning of structures shall use a high pressure/low volume power washer. It is prohibited to use a hose while cleaning structures.
5. The District will prohibit the use of temporary fire hydrant meter(s), or otherwise using potable water through a temporary District water service including jumpers. 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.
6. No potable water will be allowed for golf course greens. Golf courses are required to convert to recycled water within 30 days.
7. Repair all leaks within 72 hours of notification by the District, unless other arrangements are made with the General Manager.
8. The District may implement other prohibited water uses as determined by the District, after notice to the customers.

Water Supply Response Level 3 – Water Critical Condition

A Water Supply Response Level 3 condition is also referred to as a “Water Critical” condition. A Level 3 condition applies when it is required to reduce consumer demand of up to 40% in order to have sufficient supplies available to meet anticipated demands. The District Board shall declare the existence of a Level 3 condition and implement the Level 3 conservation measures identified in this Program.

All persons using District water shall comply with Level 1 “Water Watch” and Level 2 “Water Alert” and shall also comply with the following additional mandatory conservation measures:

1. Limit residential and commercial landscape irrigation to no more than two assigned days per week on a schedule established by the General Manager and posted by the District. During the months of November through March, landscape irrigation is limited to no more than once per week on a schedule established by the General Manager and posted by the District.
2. Water landscaped areas, including trees and shrubs located on residential and commercial properties, and not irrigated by a landscape irrigation system governed by Section 1 above, by using a bucket, hand-held hose with positive shutoff nozzle, or low-volume non-spray irrigation.
3. Permit required to fill, or refill, ornamental lakes or ponds, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a water supply response level under these rules.
4. Stop washing vehicles except at commercial carwashes that re-circulate potable water or by high pressure/low volume wash systems.
5. Emptying and refilling of swimming pools and spas, excluding normal maintenance of water levels due to evaporation, is prohibited, except as otherwise required to comply with Federal law "Virginia Graeme Baker Pool and Spa Safety Act of 2007."
6. Repair all leaks within 48 hours of notification by the District unless other arrangements are made with the General Manager.
7. Commercial growers or nurseries may be subject to additional restrictions if the District deems it necessary.
8. The District may implement other prohibited potable water uses as determined by the District, after notice to the customers.
9. No new potable water service shall be provided, no new temporary meters or permanent meters shall be provided, and no statements of immediate ability to serve or provide

potable water service (such as will-serve letters) shall be issued, except under the following circumstances:

- i. A valid, unexpired building permit has been issued for the project; or
- ii. The project is necessary to protect the public's health, safety, and welfare; or
- iii. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new potable water meter(s) to the satisfaction of the District.

This provision shall not be construed to preclude the resetting or turn-on of meters to provide continuation of water service or to restore service that has been interrupted for a period of one year or less.

10. The District will suspend consideration of annexations to its service area.
11. The District may establish water allocation for property served by the District using a method that does not penalize persons for the implementation of conservation methods or the installation of water saving devices. If the District establishes water allocation it shall provide notice of the allocation in the regular billing statement or by any other mailing to the address to which the District customarily mails the billing statement for ongoing water service. The notice of allocation may also include notice that water usage in excess of the allocation will be subject to a penalty in a specified amount for each billing unit of water used in excess of the allocation. The penalty for excess water shall be cumulative to any other remedy or penalty that may be imposed for violation of these rules.

Water Supply Response Level 4 – Water Emergency Condition

A Water Supply Response Level 4 condition is also referred to as a "Water Emergency" condition. A Level 4 condition applies when the District's water supplier declares a water shortage emergency pursuant to California Water Code Section 350 and notifies its member agencies that demand reduction of more than 40% is required in order for the District to have maximum water supplies available to meet anticipated demands, or when the District makes a determination that such demand reduction is required. The District Board shall declare a Water Emergency on the grounds provided in California Water Code Section 350.

Upon declaration of a Water Emergency, all persons using water shall comply with conservation measures required during Level 1 – "Water Watch", Level 2 – "Water Alert," and Level 3 – "Water Critical" conditions and shall also comply with the following additional mandatory conservation measures:

1. Limit residential and commercial landscape irrigation to no more than one assigned day per week on a schedule established by the General Manager and posted by the District.

This restriction shall not apply to the following categories of use unless the District has determined that Recycled Water is available and may be lawfully applied to the use:

- a. Maintenance of trees and shrubs that are watered using a bucket, hand-held hose with a positive shutoff nozzle, or low-volume non-spray irrigation.
 - b. Existing landscaping for fire prevention, if property owner provides proof of such need from the fire authority.
 - c. Maintenance of plant materials identified to be rare or essential to the well-being of rare animals.
 - d. Watering of livestock, e.g. horses, goats, chickens, etc.
 - e. Public works projects and actively irrigated environmental mitigation projects.
2. Repair all leaks within 24 hours of notification by the District unless other arrangements are made with the General Manager.
 3. No statements of immediate ability to serve or provide potable water service, or will-serve letters, will be issued.
 1. The District, in its sole discretion, may discontinue service to customers who willfully violate the measures of this section.
 5. The District may implement other prohibited water uses as determined by the District, after notice to the customers.

Procedures for Determination and Notification of Water Supply Response Level

Level 1

The existence of a Level 1 condition may be declared by the General Manager upon a written determination of the existence of the facts and circumstances supporting the determination. A copy of the written determination shall be filed with the District Secretary and provided to the District Board. The General Manager may publish a notice of existence of a Level 1 condition in one or more newspapers, including a newspaper of general circulation within the District service area. Notices may also be posted on the District's Web site at www.mnwd.com.

Levels 2 and 3

The existence of a Level 2 or Level 3 condition may be declared by resolution of the District Board adopted at a public meeting held in accordance with State law. The mandatory conservation measures applicable to a Level 2 or Level 3 conditions shall take effect on the 10th day after the date the response level is declared. Within five days following the declaration of the response level, the District shall publish a copy of the resolution in a newspaper used for

publication of official notices and shall post a notice on the District's Web site at www.mnwd.com.

If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for water service. Water allocation shall be effective on the fifth day following the date of mailing or at such later date as specified in the notice.

Level 4

The existence of a Level 4 condition may be declared by the District Board in accordance with the procedures specified in Water Code Sections 351 and 352, or as otherwise required by law. The mandatory conservation measures applicable to a Level 4 condition shall take effect on the 10th day after the date the response level is declared. Within five days following the declaration of the Response Level, the District shall publish a copy of the resolution in a newspaper used for publication of official notices. Notices may also be posted on the District's Web site at www.mnwd.com.

The District Board may declare an end to any Water Supply Response Level by the adoption of a resolution at any public meeting held in accordance with State Law.

Hardship Variance

If, due to unique circumstances or the application of other legal requirements, a specific requirement of this Program would result in undue hardship to a person using potable water or to property upon which water is used that is disproportionate to the impacts to District water users generally, then the person may apply for a variance to the requirements as provided in this section.

The variance may be granted or conditionally granted, only upon a written finding of the existence of facts demonstrating an undue hardship to a person using potable water or to property upon which water is used, that is disproportionate to the impacts to District users generally due to specific and unique circumstances of the user or user's property.

1. Application

Application for a variance shall be a form prescribed by the District and shall be accompanied by a non-refundable processing fee in an amount set by resolution of the District Board.

2. Supporting Documentation

The application shall be accompanied by photographs, maps, drawings and other information, including a written statement of the applicant.

3. Required Findings For Variance

An application for a variance shall be denied unless the approving authority finds, based on the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by District records, all by the following:

- a. The variance does not constitute a grant of special privilege inconsistent with the limitations upon other District customers.
- b. Because of special circumstances applicable to the property or its use, the strict application of these rules would have a disproportionate impact on the property or use that exceeds the impacts to customers generally.
- c. Such variance will not be of substantial detriment to adjacent properties, will not materially affect the ability of District to effectuate the purpose of these rules and will not be detrimental to the public interest.
- d. The condition or situation of the subject property or the intended use of the property for which the variance is sought is not common, recurrent, or general in nature.
- e. All other conservation measures possible have been implemented.

4. Approval Authority

The General Manager shall exercise approval authority and act upon any completed application no later than ten days after submittal and may approve, conditionally approve, or deny the variance. The applicant requesting the variance shall be promptly notified in writing of any action taken. Unless specified otherwise at the time a variance is approved, the variance applies to the subject property during the term of the mandatory Water Supply Response Level.

5. Appeals

An applicant may appeal a decision or condition of the General Manager on a variance application to the District Board within 10 days of the decision upon written request for a hearing. The request shall state the grounds for appeal. At a public meeting, the District Board shall act as the approval authority and review the appeal *de novo* by following the variance procedure above. The District Board, in its discretion, may affirm, reverse or modify the determination, and the decision of the District Board is final.

Violations And Penalties

All Levels

1. Any person, who uses, causes to be used, or permits the use of potable water in violation of these rules is subject to the fines and enforcement provisions as provided herein.
2. Each day that a violation of these rules occurs is a separate violation; provided that an act or failure to act on any day that causes a violation of more than one rule shall constitute only one daily violation.
3. Anytime after a first violation, additional violations are subject to enforcement through installation of a flow-restricting device in the meter, which costs of installation or removal shall be paid for by the person who uses, causes to be used, or permits the use of water in violation of these rules.
4. Each violation of these rules may be prosecuted as a misdemeanor punishable by imprisonment in the County jail for not more than 30 days or by fine not exceeding \$1,000, or by both as provided in Water Code Section 377.
5. All remedies provided for herein shall be cumulative and not exclusive.

Levels 1 and 2

1. For the first violation, the District shall issue a written notice of the fact of such violation to the customer's address of record.
2. For a second violation within 12 months from the first notice of violation, the District shall issue a written notice of the fact of such violation delivered via certified mail and first class mail to the customer's address of record.
3. For a third violation within 12 months from the first notice of violation, the customer shall be administratively fined \$100 which may be collected on the customer's water bill.
4. For the fourth and any subsequent violation within 12 months from the first notice of violation, of the customer shall be administratively fined \$200 which may be collected on the customer's water bill.

Levels 3 and 4

1. For the first violation, the District shall issue a written notice of the fact of such violation delivered via certified mail and first class mail to the customer's address of record.
2. For a second violation, the customer shall be administratively fined \$200 which may be collected on the customer's water bill.
3. For a third violation, the customer shall be administratively fined \$500 which may be collected on the customer's water bill.

4. For a fourth violation involving potable water for construction and/or irrigation use, the customer shall be administratively fined \$1,000 which may be collected on the customer's water bill.
5. Willful violations of the rules applicable during a Level 4 condition may be enforced by discontinuing service to the property at which the violation occurs as provided by Water Code Section 356.

Hearing Procedure

Any customer receiving (1) notice of a second or subsequent violation under Levels 1 or 2, (2) notice of a first or subsequent violation under Levels 3 or 4, or (3) notice of misdemeanor enforcement, shall have a right to a hearing by the General Manager or his designees provided that a written request for hearing is filed within 15 days from the later of the certified date of delivery or the date of first class mailing, of the notice of violation and the customer deposits with the District a sum equal to any fine and pays all other outstanding water charges.

1. The customer's timely written request for a hearing shall automatically stay installation of a flow-restricting device until a decision is rendered.
2. If it is determined that a fine was wrongly assessed, the District will refund any money deposited to the customer.
3. The decision of the General Manager or his designee shall be provided in a written notification delivered via certified mail and first class mail to the customer's address of record and is subject to the appeal process set forth below.
4. A customer may appeal a hearing determination to the District Board upon submission of written request for a hearing within 10 days after the certified date of delivery, or the date of first class mailing, of the notification of decision. The request shall state the grounds for appeal. At a public meeting, the District Board shall review the appeal. The District Board, in its discretion, may affirm, reverse or modify the determination, and the decision of the District Board is final. Any determination of misdemeanor enforcement will be automatically reviewed by the District Board and the District Board, in its discretion, may affirm, reverse or modify that determination, and the decision of the District Board is final.

Termination

The decision to discontinue one or more rules under this Water Conservation Program in response to improved water supply outlook will be made by the District Board based upon the recommendation of the General Manager.

EXHIBIT "F"
WATER SAVING FIXTURE SPECIFICATIONS

Any new or remodeled plumbing, water piping, or other water using fixtures shall be of the "water sense" type or category identified under the most current California plumbing code shall comply with the specifications therefore.

WATER CLOSETS, TANK TYPE

All water closets must flush with 1.6 gallons of water or less.

URINALS

All urinals must flush with 1.0 gallon of water or less.

SHOWERHEADS

All showerheads shall be flow control types designed to limit the maximum flow to 2.5 gallons per minute.

LAVATORY AND SINK FAUCETS

All faucets shall be flow control types designed to limit maximum flow to 2.2 gallons per minute per valve or 4 gallons per minute on single control faucets.

NOTE: Fixtures and devices, which utilize restrictive devices, shall be of a type where such devices cannot be removed by the user.

PRE-RINSE SPRAY NOZZLES

Pre-rinse spray nozzles must use 1.6 gallons per minute or less, commercial use only.

HIGH-EFFICIENCY CLOTHES WASHER

Approved high-efficiency clothes washer must have a water factor of 6.0 or less.

Proposition 218 Letter

January 6, 2011



RE: Notice of Public Hearing for Proposed Change to a Water-Budget-Based Rate Structure and Resulting Rate Adjustments

Dear Moulton Niguel Water District Customer,

Every Moulton Niguel Water District (MNWD) customer has unique water needs. Typically, more water is necessary for large homes than condos, and businesses use water in differing ways. That is why the District is considering a change to our billing rate structure that is based on meeting each customer's specific water needs while stabilizing MNWD's finances.

The Board will consider the proposal at a public hearing on February 23, 2011 at 5:30 p.m., and has established opportunities for customers to gain information, ask questions and provide input, so your comments and protests (see page two) can be considered before a decision is made. If approved, the proposed rate structure would be effective for water services used beginning July 1, 2011.

On the pages that follow, we outline why the change is being proposed, how it would benefit our customers and what this would mean for your bill.

Proposed Change to a Water-Budget-Based Rate Structure

MNWD is considering a change from the current water rate model to a Water-Budget-Based Rate Structure to help District customers become part of the solution as we work together to conserve our region's limited water resources. The new rate structure encourages conservation by providing each customer with a personalized amount of water – a water budget – designed to meet their specific indoor and outdoor watering needs. This amount is calculated for residential customers based on a survey the District conducted of each customer's lot size and landscaped area, the number of residents in each home and localized weather data, among other factors. Residential water budgets would vary from month to month based upon the weather. Businesses, however, use water in a different manner from homes, so their budgets would be calculated based on a three-year rolling average of each commercial customer's monthly use.

Customers whose water use remains within their water budgets would be billed at the lower rates, and customers who exceed their budgets would be billed at higher rates. This new rate structure would reward efficiency and give customers the freedom to use their water budgets as they see fit. **The current three-day-per-week watering restrictions would no longer be in effect.** Of course, we understand that unique situations can lead

Public Hearing for Proposed Water Rate Change

February 23, 2011

5:30 p.m.

**MNWD Headquarters
27500 La Paz Rd.
Laguna Niguel**

A public agency at:

27500 La Paz Road, Laguna Niguel, CA 92677-3489 • 949.831.2500
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203

to a legitimate need for more water, so the system we are considering includes simple steps to adjust the water budget established for your home or business.

The proposed Water-Budget-Based Rate Structure would also allow MNWD to price water more accurately based on fixed and variable costs, which would help stabilize the District's finances moving forward. The proposed structure is designed to generate the same revenues for MNWD in fiscal year 2011-2012 as under the current rate structure.

What the Water-Budget-Based Rate Structure Means for Customers

The impact of the proposed change on each residential and commercial customer would vary based upon their actual water use, size of meter and the customized water budget for their property. Customers whose water use remains within their water budgets would be billed at the lower consumption rates, and customers who exceed their budgets would be billed at higher consumption rates. However, all residential and commercial customers should expect increases in their water bills as a result of adjustments to the fixed base charges and variable consumption rates, to more equitably share the costs of maintaining and replacing infrastructure District-wide.

To calculate your customized water budget and see how your water bill may change under the proposed Water-Budget-Based Rate Structure, please visit www.MNWD.com.

How You Can Participate

The Board of Directors wants you to have the information you need to consider the proposed rate structure before any decision is made. Here are four easy ways you can participate in the process:

- **Submit a Comment or Question:** Customers with comments or questions can contact us at (949) 831-2500 or rates@MNWD.com. We are here to answer your questions and the Directors will consider these comments before they make a decision.
- **Attend a Board Meeting:** The Board will host public rate discussions during the regularly scheduled meetings on February 15 and 16 at 9 a.m. and February 17 at 5:30 p.m., where the proposal will be reviewed and the public can ask questions and submit comments.
- **Attend the Public Hearing:** The Board will formally consider the proposed Water-Budget-Based Rate Structure in a public hearing in compliance with Proposition 218 on February 23, 2011 at 5:30 p.m. at District headquarters, 27500 La Paz Rd., Laguna Niguel. This hearing will include a public comment period where members of the public can pose questions, express any concerns and submit written protests (see below).
- **Submit a Written Protest:** By law, any customer of record or property owner within the MNWD service area may file a written protest against the proposed rate changes with the District by submitting in person or sending a letter to MNWD, 27500 La Paz Rd., Laguna Niguel, CA, 92677, attention: General Manager. A valid protest letter must include your name, the address at which service is received from MNWD, a statement of protest against the rate changes and your original signature. E-mail or other electronic protests are not valid and cannot be accepted as official protests. Protest letters received will be tabulated and presented to the Board at the public hearing on the proposed rate change to be held on February 23, 2011 at 5:30 p.m. in the MNWD Board Room, 27500 La Paz Road in Laguna Niguel. Any MNWD customer or property owner within the MNWD service area may appear at the hearing to make comments regarding the proposed rates. To be valid, protest letters must be received prior to the conclusion of the public hearing. Only one protest per property will be counted. If written protests are not filed by a majority of customers of record or owners of property within the service area, the Board will be authorized to implement the proposed rate changes.

We remain committed to keeping your rates as low as possible while providing the reliable water and sewer service you've come to expect. Please see the charts and information on the following pages for additional details. If you have any questions, please contact us at (949) 831-2500 or rates@mnwd.com.

Sincerely,
MOULTON NIGUEL WATER DISTRICT



Robert C. Gumerman, Ph.D., P.E.
General Manager

**Visit www.MNWD.com for more information
and to calculate your customized
water budget.**

The proposed rate structure change is based on a financial study by an independent consultant that calculates costs of providing quality and reliable water and sewer service, including long-term debt, current and planned capital projects, and District revenues, through fiscal year 2012. This financial study is available for review upon request at District headquarters, 27500 La Paz Road in Laguna Niguel.



MNWD Headquarters: 27500 La Paz Rd., Laguna Niguel

WATER RATES

There are two parts to the water rates charged to MNWD's customers: A fixed Basic Service Charge and a variable Consumption Charge. The Basic Service Charge is a fixed amount based on the meter size at the service address. The most common meter sizes for residential properties are between 5/8" and 1". See your water bill for your meter size. The Consumption Charge is determined by the amount of water served to the property, and is measured in billing units, where one billing unit equals 748 gallons of water.

PROPOSED WATER BUDGET CONSUMPTION CHARGES

1 Billing Unit (B.U.) = 748 Gallons

RESIDENTIAL & MULTI-FAMILY WATER RATES

Consumption Tiers	Description	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Conservation	Water Budget	\$1.35	\$1.38	\$0.03
Efficient	Water Budget	\$1.51	\$1.54	\$0.03
Inefficient		\$1.82	\$2.75	\$0.93
Excessive		\$2.13	\$5.51	\$3.38
Wasteful		\$2.29	\$11.02	\$8.73

COMMERCIAL WATER RATES

Consumption Tiers	Description	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Conservation	Base (First 20 B.U.)	\$1.35	\$1.38	\$0.03
Efficient	Water Budget	\$1.51	\$1.54	\$0.03
Inefficient		\$1.82	\$2.75	\$0.93
Excessive		\$2.13	\$5.51	\$3.38
Wasteful		\$2.29	\$11.02	\$8.73

COMMERCIAL/RESIDENTIAL IRRIGATION WATER RATES

Consumption Tiers	Description	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Conservation	Base (First 20 B.U.)	\$2.29	\$1.54	-\$0.75
Efficient	Water Budget	\$2.29	\$1.54	-\$0.75
Inefficient		\$2.29	\$2.75	\$0.46
Excessive		\$2.29	\$5.51	\$3.22
Wasteful		\$2.29	\$11.02	\$8.73

RECYCLED WATER RATES

Consumption Tiers	Description	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Conservation	Base (First 20 B.U.)	\$1.83	\$1.23	-\$0.60
Efficient	Water Budget	\$1.83	\$1.23	-\$0.60
Inefficient		\$1.83	\$2.20	\$0.37
Excessive		\$1.83	\$4.41	\$2.58
Wasteful		\$1.83	\$8.81	\$6.98

RECYCLED w/ STORAGE WATER RATES

Consumption Tiers	Description	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Conservation	Base (First 20 B.U.)	\$1.65	\$1.11	-\$0.54
Efficient	Water Budget	\$1.65	\$1.11	-\$0.54
Inefficient		\$1.65	\$1.98	\$0.33
Excessive		\$1.65	\$3.97	\$2.32
Wasteful		\$1.65	\$7.93	\$6.28

Water Budgets in Detail

For residential and multi-family customers, the proposed rate structure for the Consumption Charge has five tiers. Residential customers who stay within their water budget would remain in the first two tiers:

Conservation (Tier 1): Based on the number of people in your household and staying within your indoor water budget.

Efficient (Tier 2): Based on the total irrigated landscaped area for your property and staying within your outdoor water budget.

Inefficient (Tier 3): Based on exceeding your total water budget by up to 25%.

Excessive (Tier 4): Based on exceeding your total water budget by up to 50%.

Wasteful (Tier 5): Based on exceeding your total water budget by more than 50%.

For commercial customers, the proposed rate structure for the Consumption Charge has five tiers. Commercial customers who stay within their water budget would remain in the first two tiers:

Water Budget (Tier 1): Based on the first 20 billing units.

Water Budget (Tier 2): Based on the remainder of your customized water budget.

Inefficient (Tier 3): Based on exceeding your total water budget by up to 10%.

Excessive (Tier 4): Based on exceeding your total water budget by up to 20%.

Wasteful (Tier 5): Based on exceeding your total water budget by more than 20%.

HYDRANT WATER RATES (Potable)

	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Basic Service Charge	\$78.45	\$78.45	\$0.00
Consumption Charge	\$2.29	\$2.29	\$0.00

HYDRANT WATER RATES (Recycled)

	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Basic Service Charge	\$78.45	\$78.45	\$0.00
Consumption Charge	\$1.83	\$1.83	\$0.00

FIRE PROTECTION WATER RATES (Residential/Commercial)

	Approved Rates 06/01/11	Proposed 07/01/11	Amount of Increase
Consumption Charge	\$2.29	\$2.29	\$0.00

PROPOSED BASIC SERVICE CHARGES

MONTHLY BILLS*

Meter Size	Approved Monthly Charge 06/01/11	Proposed Monthly Charge Beg. 07/01/11	Amount of Increase
5/8", 3/4", 1"	\$10.36	\$10.36	\$0.00
1 1/2"	\$18.20	\$34.53	\$16.33
2"	\$30.75	\$55.25	\$24.50
3"	\$41.73	\$120.87	\$79.14
4"	\$57.42	\$207.20	\$149.78
6"	\$88.80	\$431.67	\$342.87
8"	\$120.18	\$621.60	\$501.42
10"	\$151.56	\$1,001.47	\$849.91
Hydrant Meters	\$78.45	\$78.45	\$0.00
Fire Protection	\$6.28	\$6.28	\$0.00

* Monthly bills include individually metered residential, residential fire protection, dedicated residential irrigation and recycled accounts.

BI-MONTHLY BILLS**

Meter Size	Approved Bi-Monthly Charge 06/01/11	Proposed Bi-Monthly Charge Beg. 07/01/11	Amount of Increase
5/8", 3/4", 1"	\$20.72	\$20.72	\$0.00
1 1/2"	\$36.40	\$69.06	\$32.66
2"	\$61.50	\$110.50	\$49.00
3"	\$83.46	\$241.74	\$158.28
4"	\$114.84	\$414.40	\$299.56
6"	\$177.60	\$863.34	\$685.74
8"	\$240.36	\$1,243.20	\$1,002.84
10"	\$303.12	\$2,002.94	\$1,699.82
Fire Protection	\$12.56	\$12.56	\$0.00

** Bi-monthly bills include commercial, fire protection, irrigation and master-metered multi-family accounts.

Future Wholesale Water Increases

In addition to the water rate adjustments set forth in this notice, MNWD may, and reserves the right to, pass through additional increases in wholesale water charges imposed by MNWD's wholesale water supplier, Municipal Water District of Orange County (MWDOC), or from other public agencies, during the period from July 1, 2011 through June 2016. These adjustments may be made to the District's customer bills, at MNWD's option, whenever MWDOC (or another public agency as applicable) increases the standard wholesale cost of water beyond the current wholesale cost assumed by MNWD for the potable water-budget consumption charges. The increases would only be made to the extent such increases are not already reflected in the schedule of charges then in effect. The adjustments would be passed through with at least 30 days notice to customers, and documentation of the increased amount of the wholesale water costs and the basis for adjusting the water-budget consumption charges would include such adjustments.

How are Residential Water Budgets Determined?

There are two components to residential water budgets: the indoor budget and the outdoor budget.

Indoor Water Budget

The indoor budget is calculated using three factors:

- The average amount of water a person uses each day
- The number of people in the household
- The number of days in the billing cycle

Average Amount of Water Used

A recent study showed that, on average, a person will use about 60 gallons of water each day indoors. This number includes all indoor water use, such as showers and washing clothes, and is based on water-efficient devices. MNWD would utilize a budget of **65** gallons per person per day. For comparison, other water agencies in Orange County have budgeted 55 to 60 gallons per day for each customer's indoor use.

People per Household

The most recent census data shows there is an average of 2.65 people per household in MNWD's service area. Each single-family home would receive a budget of four people per home. Condominiums would receive a budget of three people per home and apartments would be budgeted two people. Customers are encouraged to contact the District if their situation differs, requiring a larger indoor water budget. A variance is available for customers with a greater number of people in their household.

Days in Billing Cycle

This is the number of days that you are being billed for service. This information can be located on your water bill, and comes from the meter read dates. It may differ from bill to bill, but will usually be between 28 and 31 days.

Indoor Budget Formula

65 gallons per day x number of people x number of days on bill

Example:

- 4 people in the household, 30-day billing cycle
- $65 \times 4 \times 30 = 7,800$ gallons of water = 10.4 billing units
(1 billing unit = 748 gallons)

Outdoor Budget

The outdoor budget is calculated using three factors:

- Amount of irrigated acreage per parcel
- Daily evapotranspiration
- Plant factor

Irrigated Acreage

The irrigated acreage is the amount of landscaped area on the property that receives regular watering. Pools and spas are also included in the irrigated acreage. County Assessor parcel data and the District's Geographic Information System were used to determine the irrigated acreage for your home.

Daily Evapotranspiration

Evapotranspiration (ET) is the amount of water that is lost each day due to evaporation and plant transpiration. Evaporation will vary due to factors such as wind, humidity and temperature. Plant transpiration is the amount of water that plants lose from their leaves and plant tissues. The ET rate is measured every day in inches. For your water budget, the ET for each day in the billing cycle is added up. There is a higher ET rate in the summer when the weather is warmer, than in the winter. MNWD would measure ET using weather stations that can calculate precise data for 110 distinct microclimate zones within our service area.

Plant Factor

The plant factor measures the specific amount of irrigation water required by each type of plant in your yard. For example, grasses have a plant factor between 0.6 and 0.8, while water-efficient plants may have a plant factor of only 0.3 or 0.4. Your water budget would be calculated assuming your entire landscaped area is water-thirsty grass, using a plant factor of 0.8.

Outdoor Water Budget Formula

Irrigated acreage x ET x plant factor x .62 (conversion factor from inches to cubic feet)

Example:

- 5,000 square feet of irrigated acreage, ET of 5.72 inches
- $5,000 \times 5.72 \times 0.8 \times .62 = 14,186$ gallons of water = 19 billing units
(1 billing unit = 748 gallons)

Notice of Public Hearing
Important information about your water service

Moulton Niguel Water District
27500 La Paz Road
Laguna Niguel, CA 92677-3489



Moulton Niguel Water
WATER QUALITY AND SERVICE ARE #1

www.mnwd.com

PRESORT STD
U.S. POSTAGE
PAID
PERMIT 1019
SANTA ANA, CA

Appendix E
60 Day Notification Letters

March 18, 2011

Moulton Niguel Water
WATER QUALITY AND SERVICE ARE #1

Mr. Mark Pulone
City Manager
City of Aliso Viejo
12 Journey, Suite 100
Aliso Viejo, CA 92656

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Pulone:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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.

A public hearing on MNWD's 2010 UWMP is scheduled for May 19, 2011. The draft plan will be available for review beginning April 18, 2011 on MNWD's website (mnwd.com) and at the Administrative Office located at 27500 La Paz Road, Laguna Niguel, CA, 92677. The deadline for adopting the UWMP is July 1, 2011. A copy of the 2010 UWMP will be provided to the City of Aliso Viejo no later than 30 days after its adoption.

Sincerely,

MOULTON NIGUEL WATER DISTRICT



Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:
27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

March 18, 2011

Moulton Niguel Water

WATER QUALITY AND SERVICE ARE #1

Mr. Douglas C. Chotkevys
City Manager
City of Dana Point
33282 Golden Lantern
Dana Point, CA 92629

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Chotkevys:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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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Sincerely,

MOULTON NIGUEL WATER DISTRICT



Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:

27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

March 18, 2011

Moulton Niguel Water

WATER QUALITY AND SERVICE ARE #1

Mr. Bruce E. Channing
City Manager
City of Laguna Hills
24035 El Toro Road
Laguna Hills, CA 92653

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Channing:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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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Sincerely,

MOULTON NIGUEL WATER DISTRICT



Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:

27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

March 18, 2011

Moulton Niguel Water

WATER QUALITY AND SERVICE ARE #1

Mr. Timothy J. Casey
City Manager
City of Laguna Niguel
27801 La Paz Road
Laguna Niguel, CA 92677

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Casey:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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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Sincerely,

MOULTON NIGUEL WATER DISTRICT



Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:
27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

March 18, 2011

Moulton Niguel Water

WATER QUALITY AND SERVICE ARE #1

Mr. Dennis Wilberg
City Manager
City of Mission Viejo
200 Civic Center
Mission Viejo, CA 92691

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Wilberg:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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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Sincerely,

MOULTON NIGUEL WATER DISTRICT

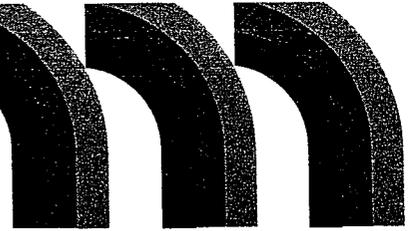


Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:
27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

March 18, 2011



Moulton Niguel Water

WATER QUALITY AND SERVICE ARE #1

Mr. Tom Daly, Clerk Recorder
Ms. Alisa Drakodaidis, Deputy CEO, OC Infrastructure
County of Orange
12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

Re: Moulton Niguel Water District 2010 Urban Water Management Plan Update

Dear Mr. Daly and Ms. Drakodaidis:

The Moulton Niguel Water District (MNWD) is in the process of preparing its 2010 Urban Water Management Plan (UWMP). UWMPs are prepared by California's urban water suppliers to support their long-term resource planning and ensure that 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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Sincerely,

MOULTON NIGUEL WATER DISTRICT



Matthew T. Collings, P.E.
Director of Engineering & Operations

MTC:fb

a public agency at:
27500 La Paz Road, Laguna Niguel, CA 92677-3489
Mailing Address: P.O. Box 30203, Laguna Niguel, CA 92607-0203
949/425-3514 FAX 949/831-6748

Appendix F
Public Hearing Notice

.AFFIDAVIT OF PUBLICATION

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

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

June 1, 8, 2011

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

Executed at Santa Ana, Orange County, California, on

Date: June 8, 2011


Signature

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

PROOF OF PUBLICATION

Proof of Publication of

**MOULTON NIQUEL WATER DISTRICT
LAGUNA NIQUEL, ORANGE COUNTY
NOTICE OF PUBLIC HEARING
2010 URBAN WATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN that on June 16, 2011, the Board of Directors of the Moulton Niguel Water District (District) will hold a public hearing to provide opportunity for public input on the draft update of the District's 2010 Urban Water Management Plan (UWMP) and consider adoption of the updated 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.

NOTICE IS HEREBY FURTHER GIVEN that said public hearing will be held on June 16, 2011, at 5:30 p.m. or as soon thereafter as possible, in the Board Room of the District's office at 27500 La Paz Road, Laguna Niguel, CA 92677-3489, at which time and place any and all persons interested may appear and be heard thereon. Written comments on the draft UWMP may be provided in advance to the Secretary of the District, at the address above. A copy of the draft UWMP is currently available for public review at the address above. For information please contact Leslie Gray at (949) 831-2500.

Leslie Gray
Board Secretary
Moulton Niguel Water District

Publish: Orange County Register June 1, 8, 2011 R-884

Appendix G
Copy of Plan Adoption

RESOLUTION NO. 11-15

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
MOULTON NIGUEL WATER DISTRICT ADOPTING 2010 URBAN
WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act, as amended, set forth in California Water Code Section 10610 *et seq.* (the "Act"), requires public agencies and other urban water suppliers to adopt a plan to describe and evaluate reasonable and practical efficient uses of water, and reclamation and conservation activities, as well as groundwater considerations, as applicable, and address measures for residential, commercial, industrial and governmental water management, including a strategy and time schedule for implementation (an "Urban Water Management Plan");

WHEREAS, on December 15, 2005, the Board of Directors (the "Board") of the Moulton Niguel Water District (the "District") adopted Resolution No. 85-86, which Resolution adopted an Urban Water Management Plan (the "Plan") for the District, which has subsequently been updated and amended by the District from time to time, in accordance with the Act;

WHEREAS, the Act requires an urban water supplier, as defined, to review its Urban Water Management Plan every five years and adopt any amendments or changes to its plan indicated by such review;

WHEREAS, District staff completed an updated plan (the "2010 Plan") proposed for adoption by the Board, and made the 2010 Plan available for review by local planning agencies, interested persons and members of the public; and

WHEREAS, the District previously noticed a public hearing on the 2010 Plan in accordance with the requirements of the Act, and the Board has conducted the public hearing on, and received all comments on the 2010 Plan.

NOW THEREFORE, the Board of Directors of the Moulton Niguel Water District does hereby **RESOLVE, DETERMINE** and **ORDER** as follows:

Section 1. The Board hereby adopts the 2010 Plan, which plan is incorporated herein by this reference, and will implement the 2010 Plan in accordance with the terms set forth therein.

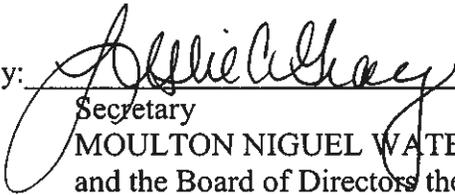
Section 2. The Secretary of the District is hereby directed to submit the 2010 Plan to the Department of Water Resources, the California State Public Library, the County of Orange and the cities within which the District provides water supplies, pursuant to Section 10644 of the Water Code, no later than 30 days from the date hereof.

ADOPTED, SIGNED and APPROVED this 16th day of June, 2011.

MOULTON NIGUEL WATER DISTRICT

By: 

President
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

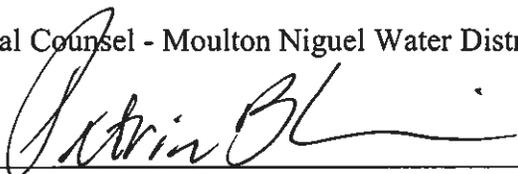
By: 

Secretary
MOULTON NIGUEL WATER DISTRICT
and the Board of Directors thereof

APPROVED AS TO FORM:

BOWIE, ARNESON
WILES & GIANNONE

Legal Counsel - Moulton Niguel Water District

By: 

Patricia B. Giannone

Appendix H

Orange County 20x2020 Regional Alliance Letter



June 22, 2011

Street Address:
18700 Ward Street
Fountain Valley, California 92708

Mailing Address:
P.O. Box 20895
Fountain Valley, CA 92728-0895

(714) 963-3058
Fax: (714) 964-9389
www.mwdoc.com

Joan C. Finnegan
President

Jeffery M. Thomas
Vice President

Brett R. Barbre
Director

Wayne A. Clark
Director

Larry D. Dick
Director

Susan Hinman
Director

Ed Royce, Sr.
Director

Kevin P. Hunt, P.E.
General Manager

Department of Water Resources
Statewide Integrated Water Management
Water Use Efficiency Branch
P.O. Box 942836
Sacramento, CA 94236-0001

Attention: Coordinator, Urban Water Management Plans

Formation of Orange County 20x2020 Regional Alliance

This letter is to inform you that the Municipal Water District of Orange County (MWDOC), together with its member agencies and the cities of Anaheim, Fullerton, and Santa Ana, has established the Orange County 20x2020 Regional Alliance in order to provide flexibility in meeting the 20% by 2020 requirements under SBx7-7 and the Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use.

As the reporting agency for the Orange County 20x2020 Regional Alliance, MWDOC has documented the calculations for the regional urban water use reduction targets in our 2010 Regional Urban Water Management Plan, adopted on June 15, 2011. The individual water suppliers in the alliance have each stated their participation in their individual 2010 Urban Water Management Plans.

The members of the Orange County 20x2020 Regional Alliance are as follows:

MEMBER AGENCIES

- City of Brea
- City of Buena Park
- East Orange County Water District
- El Toro Water District
- Emerald Bay Service District
- City of Fountain Valley
- City of Garden Grove
- Golden State Water Co.
- City of Huntington Beach
- Irvine Ranch Water District
- Laguna Beach County Water District
- City of La Habra
- City of La Palma
- Mesa Consolidated Water District
- Moulton Niguel Water District
- City of Newport Beach
- City of Orange
- Orange County Water District
- City of San Clemente
- City of San Juan Capistrano
- Santa Margarita Water District
- City of Seal Beach
- Serrano Water District
- South Coast Water District
- Trabuco Canyon Water District
- City of Tustin
- City of Westminster
- Yorba Linda Water District

- City of Anaheim
- City of Brea
- City of Buena Park
- East Orange County Water District
- El Toro Water District
- City of Fountain Valley
- City of Fullerton
- City of Garden Grove
- Golden State Water Company
- City of Huntington Beach
- Irvine Ranch Water District
- City of La Habra
- City of La Palma
- Laguna Beach County Water District
- Mesa Consolidated Water District
- Moulton Niguel Water District
- City of Newport Beach
- City of Orange
- City of San Juan Capistrano
- City of San Clemente
- City of Santa Ana
- Santa Margarita Water District
- City of Seal Beach
- Serrano Water District
- South Coast Water District
- Trabuco Canyon Water District
- City of Tustin
- City of Westminster
- Yorba Linda Water District

Sincerely,

Kevin P. Hunt, P.E.
General Manager
Municipal Water District of Orange County



8001 Irvine Center Drive, Suite 1100
Irvine, CA 92618
949.450.9901 Fax 949.450..9902

**MALCOLM
PIRNIE**

 **ARCADIS**

The Water Division of ARCADIS