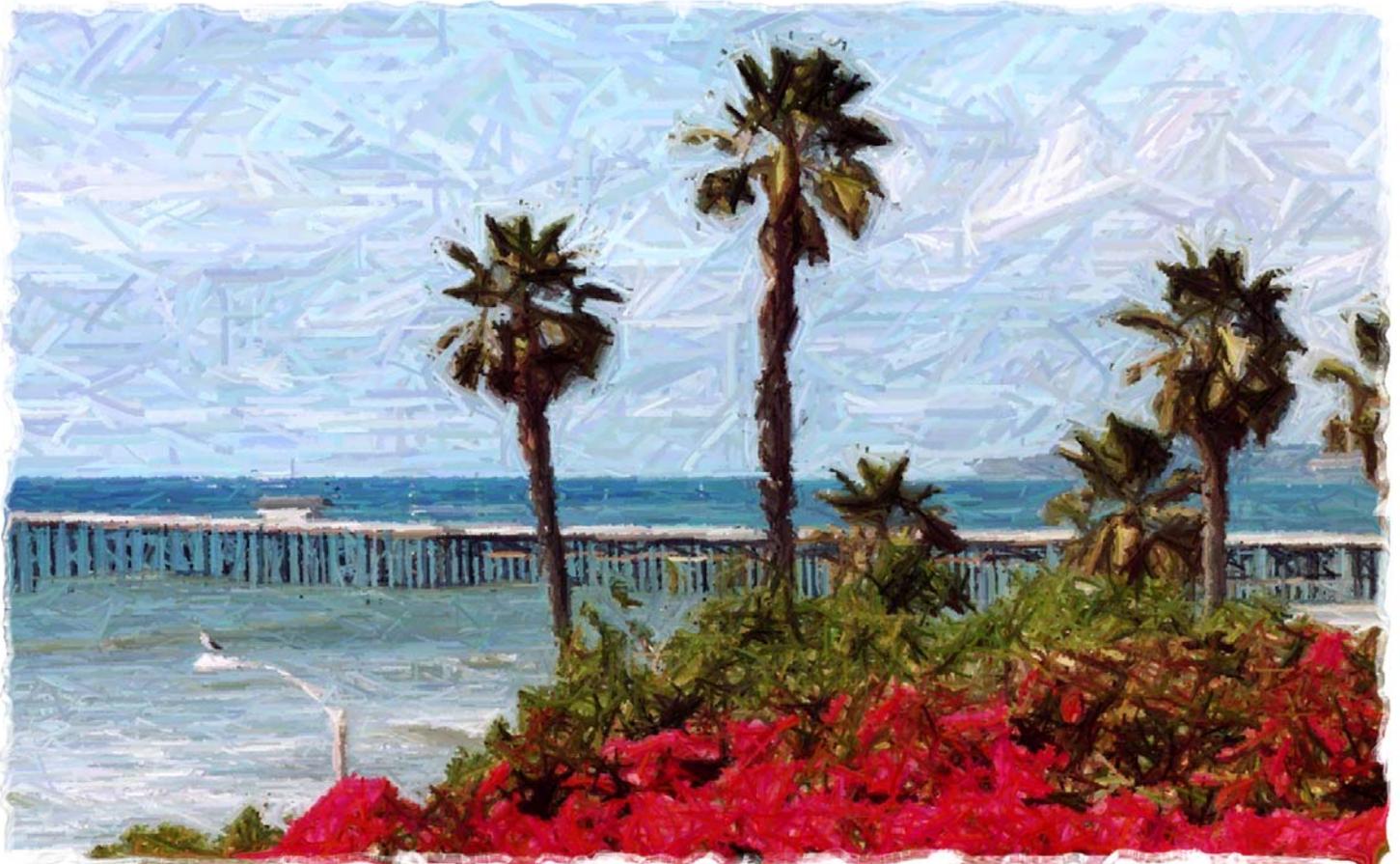




City of San Clemente California



2005

Urban Water Management Plan



About the Cover

The cover photograph was taken by Will Buddenhagen, long time San Clemente resident and City employee. Will is also an artist and photographer who finds inspiration from the beauty all around us in this wonderful coastal community

The cover photograph is of the San Clemente pier looking west from "T" Street taken on a beautiful fall afternoon.

Will can be reached via e-mail at buddenhagenphotographics@cox.net

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1 Introduction

The City of San Clemente Urban Water Management Plan 2005 (UWMP) has been prepared in accordance with the Urban Water Management Act. The plan details the City of San Clemente's past, present and future water demand trends and compares those trends with current and potential water supplies.

Where applicable, the City of San Clemente's UWMP incorporates information from the Municipal Water District of Orange County's (MWDOC) Regional Urban Water Management Plan and the Metropolitan Water District's (MWD) Regional Urban Water Management Plan. Both MWDOC and MWD's plans provide perspective for water management planning, conservation and water use efficiencies for member agencies and has been a valuable resource in the preparation of this plan.

Correspondence regarding information in the City of San Clemente Urban Water Management Plan should be directed to:

City of San Clemente Utilities Division
380 Avenida Pico, Building N
San Clemente, CA 92672
949.366.1553.

1.1 Coordination with Appropriate Agencies

The City of San Clemente (CSC) is a member agency of the Municipal Water District of Orange County (MWDOC), who supplies water to 30 Orange County water districts and cities. San Clemente relies on MWDOC to represent the City's interests on regional, state and federal levels. MWDOC is a member of the Metropolitan Water District of Southern California (Metropolitan), which supplies imported water to six Southern California counties. As a Metropolitan member, MWDOC represents the interests of its Orange County member agencies.

The CSC participated in regional Urban Water Management Plan planning meetings with both MWDOC and Metropolitan. In addition, the CSC coordinated the development of this plan with the following agencies:

Table 1-1 Coordination with Appropriate Agencies

Check at least one box on each row	Participated in UWMP Development	Commented on the Draft	Attended Public Meetings	Contacted for Assistance	Sent a Copy of the Draft Plan	Sent a Notice of Intention to Adopt	Not Involved / No Information
CSC Planning Division				X	X	X	
CSC Wastewater Utilities	X	X		X	X	X	
County of Orange						X	
Santa Margarita Water Dist.						X	
South Coast Water Dist.						X	
SOCWA						X	
MWDOC	X			X		X	

SOCWA South Orange County Wastewater Authority.

1.2 UWMP Preparation

The 2005 UWMP was prepared by City of San Clemente staff. A consultant was retained for technical review.

1.2.1 Department of Water Resource Role and Guidance

California Department of Water Resources (DWR) staff reviews and determines the completeness of individual Urban Water Management Plans pursuant to the Urban Water Management Planning Act. Agencies subject to the Act must have adopted a complete UWMP that meets the requirements of the law and submit it to DWR to be eligible for drought assistance or to receive funds through the Department. Results of the DWR review are provided to urban water suppliers through written correspondence. If necessary, water agencies with plans that do not meet DWR standards may wish to use the comments within the review letter to revise their UWMP for re-submittal. DWR provides a Legislative Report to the California Legislature one year after UWMPs are due, detailing the status and any outstanding elements of the UWMPs. DWR also prepares reports and provides data for any legislative hearings held to consider the effectiveness and/or completeness of the UWMPs in question.

DWR provides technical assistance to urban water suppliers to help them meet the requirements of the Act. DWR has provided guidance materials to aid water suppliers in developing year 2005 UWMPs. These materials are intended both to help water utilities comply

with the law and to help DWR staff review submitted plans for regulatory compliance. Guidance materials consist of a series of worksheets and check lists detailing acceptable responses to the requirements set forth in the Urban Water Management Planning Act. The CSC has used the guidance material in the development of this Plan.

1.2.2 Organization of the UWMP

This document is divided into nine (9) sections.

1. Section 1-The introduction, which explains the purpose of the Plan and the development of the plan.
2. Section 2 – The City as an agency and its service area. This section addresses current and projected water supplies available to the CSC and reliability of its water supplies
3. Section 3 - Determination of Demand Measurement Measure implementation
4. Section 4 - Discusses the water shortage contingency plan.
5. Section 5 - Recycled Water Plan: Describes the wastewater management and water recycling in the City service area.
6. Section 6 - Describes the water quality issues that exist in the City service area and addresses their impact on the reliability of providing water service.
7. Section 7 - Water Service Reliability- Discusses reliability of water service to the City customers and compares demand to supplies for normal, single-dry, and multiple-dry year scenarios.
8. Section 8 - Illustrates the adoption and implementation of the Plan.
9. Section 9 – References

1.2.3 Appropriate Level of Planning

The level of detail provided in this UWMP is consistent with the service area size of the City of San Clemente Utilities Division. The City currently serves a population of 43,900 with 16,900 service connections.

1.3 Resource Maximization / Import Minimization Plan

Several management tools are in place to maximize water resources and minimize excess importation of water. The CSC maintains water conservation staff, implements water use efficiency programs, conducts routine leak detection and utilizes a seasonal and tiered water rate structure. Water use efficiency efforts are furthered at the CSC Water Recycling Plant which recycles wastewater for irrigation use at golf courses and City facilities.

The City is committed to identifying ways of maximizing the area's existing water resources.

1.3.1 Integrated Regional Water Management Plan

In an effort to minimize its dependency on imported supplies the City has taken a proactive stance and participated in Integrated Regional Water Management Planning along with MWDOC and other Orange County water agencies.

MWDOC recognizes that the sustainable future of their service area depends upon the successful management of local and imported water supplies. MWDOC has been working with the County of Orange and the 30 cities and special districts serving the water and wastewater needs of Orange County to develop and integrate regional strategies that address, raise community awareness and coordinate numerous projects that:

- Protect communities from drought
- Enhance local water supply and system reliability
- Ensure continued water security
- Optimize watershed and coastal resources
- Improve water quality throughout the watersheds
- Safeguard habitat.

In addition, these projects, which are based on a watershed approach, include one or more of the following water management elements:

- Programs for water supply reliability, water conservation and water use efficiency
- Storm water capture, storage, treatment and management
- Removal of invasive non-native plants
- Creation and enhancement of wetlands, and the acquisition, protection, and restoration of open space and watershed lands
- Non-point source pollution reduction, management, and monitoring
- Groundwater recharge and management projects
- Water banking, water exchange, water reclamation, desalting, and other treatment technologies
- Planning and implementation of multipurpose flood control programs that protect property; improve water quality, storm water capture and percolation; and protect or improve wildlife habitat
- Watershed management planning and implementation
- Demonstration projects to develop new drinking water treatment and distribution methods.

The South Orange County Integrated Regional Water Management (IRWM) Group provides a framework for coordinating planning activities and projects related to water management and watershed protection that have been studied and funded, or are in need of funding, and integrating them into a water management plan with multiple regional benefits.

To date nearly 100 short- and long-term projects have been identified and prioritized based on the overall benefit they provide the South County region and their readiness for implementation.

1.4 City and County Notification and Participation

The CSC Utilities Division notified the planning offices of the City of San Clemente and the County of Orange of the intent to prepare the 2005 UWMP and invited the planning offices to comment during the update process. Copies of these notification letters are included in Appendix A. Utilities Division staff also coordinated the development of this plan with the City of San Clemente Community Development, Planning, and Engineering offices.

1.5 Public Participation

The CSC has encouraged community participation in its urban water management planning efforts since the first plan was developed in 1985. A legal Public Hearing Notice was published in the local newspaper and posted at City facilities to inform residents of the Urban Water Management Plan update. A public hearing for public review and comment on the draft plan was held during a City Council meeting prior to the City Council's approval of the UWMP. The Notice of Public Hearing on Tuesday, December 6, 2005 is included in Appendix B.

2 The City of San Clemente

2.1 Service Area Information

The City of San Clemente spans 18.45 square miles of coastline and scenic foothills and is located between the cities of Los Angeles and San Diego. The City's water service area covers 14.7 square miles and excludes a small section in the northern portion of the City which is serviced by South Coast Water District and the inland community of Talega which is serviced by Santa Margarita Water District. A map of the City's water service area is provided in Figure 1.

2.1.1 Population

Population in the City of San Clemente service area is expected to increase from a present 43,900 to a maximum 47,053 by the year 2030. A 3% population increase is anticipated in 2010 after the addition of 313 homes in the Marblehead Coastal development, Marblehead Coastal. After 2010, additional population increases of 0.2% annually are anticipated due to infill. Table 2-1 summarizes service area population projections over the next 25 years in 5-year increments.

Population data is based on the U.S. 2000 census with annual updates provided by the California State Department of Finance. Additional adjustments are provided by the City of San Clemente's Planning Division based on new construction.

Table 2-1 Current and Projected Population

	2005	2010	2015	2020	2025	2030
Service Area Population	43,900	45,217	45,669	46,126	46,587	47,053

2.1.2 Climate

San Clemente enjoys a Mediterranean climate. The weather is generally mild, with average temperatures ranging from a low of 46 degrees in December to a high of 73 degrees in September. There are virtually no days below freezing, and approximately 325 days of sunshine each year. Average annual rainfall is 10 inches along the coast and 14 inches in the higher inland elevations. Most of the rainfall occurs between the months of November and March.

Climate data in Table 2-2 is comprised of California Irrigation Management Information System (CIMIS) data from Irvine station no.75 from October 1, 1987 through June 30, 2005. Irvine Station no.75 provided the longest local record and most recent data in the vicinity of the City of San Clemente's service area.

Table 2-2 Climate

	January	February	March	April	May	June
Standard Average ETo	2.18	2.49	3.67	4.71	5.18	5.87
Average Rainfall (in)	2.53	4.99	2.20	0.85	0.34	0.20
Average Temperature (°F)	55.0	55.3	57.1	59.5	63.0	65.3

	July	August	September	October	November	December	Annual
Standard Average ETo	6.29	6.17	4.57	3.66	2.59	2.25	49.63
Average Rainfall (in)	0.10	0.07	0.25	0.64	0.81	2.08	15.06
Average Temperature (°F)	69.2	70.2	68.5	64.3	58.9	54.6	61.7

2.1.3 Land Use

The City of San Clemente has adopted a General Plan, which serves as the foundational planning document for San Clemente. The Plan provides policies regarding the management of new development, economic development, and conservation of natural resources, as well as many other issues affecting the City. It defines the framework by which the City will change and grow, detailing how physical and economic resources are to be managed and utilized over time. Approximately every ten years, the City of San Clemente comprehensively updates its General Plan.

It is the intent of the land use policies of the General Plan to achieve the following:

- Retain existing residential neighborhoods and community and visitor serving commercial and industrial districts and provide for infill with uses that are compatible with existing development.
- Allow for the intensification or changing of use in selected existing sites which contain obsolete uses or are economically "underutilized," where new development activity would realize significant economic and physical benefits to the City and /or improved compatibility with adjacent use.
- Provide for the planned development of vacant lands which is linked to the timely expansion of supporting transportation and utility infrastructure and public services.
- Preserve and expand significant open space resources, including passive and active recreational lands (parks, beaches, and trails), significant visual elements (ridgelines, hillsides, canyons, and coastline), and significant vegetative and wildlife habitats.

2.1.4 Demographic Factors

Within the next few years the last large developable piece of land in San Clemente will be developed for commercial and residential land use under the project name Marblehead Coastal. After Marblehead Coastal is completed, all projected future residential development affecting population growth will be limited to:

- Building on undeveloped individual lots
- Redevelopment of single family homes to multi-family, where zoning permits
- Changes in zoning to allow mixed-use of commercial retail, office, and residential land use
- Development of senior housing projects in residential, commercial and mixed-use zones.

All of these potential residential developments are projected to increase service area population by less than 100 per year or an average of only 0.2%.

2.2 Water Sources

The City of San Clemente’s water supply is comprised of groundwater extracted from City owned wells, imported water from the Metropolitan Water District through purchases from the Municipal Water District of Orange County and production of recycled water at the City’s Recycled Water Treatment Facility. Table 2-3 tabulates current and projected water supplies until 2030 from each of these sources.

Table 2-3 Current and Planned Water Supplies – Acre Feet /Year (AF/Y)

Water Supply Sources	2005	2010	2015	2020	2025	2030
Water Purchased From:						
MWDOC	10,186	9,806	9,992	9,994	9,994	9,994
Supplier Produced Groundwater (San Juan Basin)						
San Clemente Subuit	720	1,100	1,100	1,100	1,100	1,100
Recycled Water (Projected Use)	552	1,256	1,767	2,300	2,300	2,300
Total	11,458	12,162	12,859	13,394	13,394	13,394

2.2.1 Imported Water

The City of San Clemente currently imports 89% of its total water from Metropolitan through purchases from MWDOC. Imported water from Metropolitan is routed into South Orange County via Metropolitan’s East Orange County Feeder No. 2 (ECOF No.2) and the Allen-McCullough Pipeline (AMP). The Joint Transmission Main (JTM) is connected to the ECOF No.2 and delivers water to multiple South County agencies, including the northwesterly area of Marine Corps Base Camp Pendleton. Connected to the AMP is the South County Pipeline (SCP), which deliveries water to San Clemente. The SCP is owned and operated by the Santa Margarita Water District.

Water supplies from MWDOC are delivered to the City via the JTM and the SCP. As local supplies are developed, the amount of imported water is expected to decrease to 80% in 2010 and then to 75% in 2020. Table 2-4 depicts the current local and import water supply sources available to the City of San Clemente. Import supply capacity is broken down for each turnout.

Table 2-4 City of San Clemente Current Supply Sources

Source			Origin	Capacity (cfs)	Capacity AF/Yr
Groundwater Supplies					720
Imported Supplies					
SCP			AMP	6.7	5,250
	SCP-5B-1	2.5			
	SCP-5B-2	2.5			
	SCP-5B-3	3			
	SCP-5B-4	2.25			
JTM			EOCF No.2	14.78	10,700
	JTM-1	1.15			
	JTM-2	2.48			
	JTM-3	2.27			
	JTM-4	4.43			
	JTM-5	6.93			
	JTM-6	3.73			
	JTM-7	1.44			
	JTM-8	5.23			
	JTM-9	2			
Imported Supply Total				18.27	15,950
Recycled Water					552
Total Supplies					17,222

2.2.2 Recycled Water

The City of San Clemente has been committed to the production and distribution of recycled water for over forty-five years. The City's treatment facility currently produces 720 acre-feet of unrestricted Title 22 Recycled Water per year. This recycled water is used to irrigate the Municipal Golf Course, Pacific Golf Club and the City's Recycled Water Treatment Facility.

2.2.3 Groundwater

The City of San Clemente has one operating well, well 6, which is located in the southeast corner of the City. Well 6 pumps groundwater from the non-adjudicated San Clemente hydrologic sub-unit of the San Juan basin and currently provides 6% of the City's total water supply. Groundwater is treated for iron and manganese removal and is regularly monitored for turbidity, coliform, pH, taste, odors and chlorine residual.

2.2.3.1 Groundwater Management

The City's groundwater management procedure was created in cooperation with the Department of Health Services and incorporated results from 1987 study by Boyle Engineering Corporation, titled "City of San Clemente Groundwater Supply and Management Study." The City established a safe pumping yield on the San Clemente sub-unit of 1,100 acre-feet per year. This safe pumping yield is in place to avoid seawater intrusion and prevent basin overdraft. Groundwater pumping is monitored to ensure water extraction does not exceed the safe yield.

A copy of the City of San Clemente Groundwater Supply and Management Study is available for public review in the Utilities Division Office.

2.2.3.2 Groundwater Basin

The CSC extracts groundwater from the San Clemente hydrologic sub-unit of the San Juan basin. The 1987 groundwater study by Boyle Engineering indicated that confined groundwater in the San Clemente sub-unit is produced from a deep-lying series of semi-consolidated sandstone beds with numerous coarse gravel lenses. The majority of the soils in the sub-unit have slow or very slow infiltration rates. The usable surface area of San Clemente sub-unit was identified to be 107 acres with a hypothetical usable depth ranging from 10 to 110 feet. After assessing the aquifer's size, safe yield was set at 1,100 AF per year. The City has successfully relied on well water production during drought years and does not anticipate a reduction in safe yield.

Annual groundwater extractions are currently 720 acre-feet per year and are anticipated to increase to 1,100 acre-feet per year in 2010 after the installation or rehabilitation of an off-line well. Tables 2-5 and 2-6 provide historical and projected pumping data for the groundwater basin. Groundwater extraction did not take place in 2001 because the well was off line for rehabilitation.

Table 2-5 Amount of Groundwater Pumped AF/Y

Basin Name	2000	2001	2002	2003	2004
San Juan Basin - San Clemente Subunit	378	0	576	593	622
% of Total Retail Water Supply	3.2%	0%	4.6%	4.6%	4.9%

Table 2-6 Amount of Groundwater Projected to be Pumped AF/Y

Basin Name(s)	2010	2015	2020	2025	2030
San Juan Basin - San Clemente Subunit	1,100	1,100	1,100	1,100	1,100
% of Total Retail Water Supply	9.0%	8.6%	8.2%	8.2%	8.2%

2.3 Reliability of Water Supply

With the exception of relatively small quantities of recycled water and groundwater, the City is dependent on MWD sources for its water supply. Therefore reference is made to the MWD Regional UWMP for the reliability of MWD water supplies and its vulnerability to seasonal or climatic shortages. The City has sufficient imported water infrastructure to accommodate the increased demand.

To evaluate supply reliability, MWD developed a computer model named IRPSIM. This model uses 70 years of historical hydrology (from 1922 to 1991) to develop estimates of water surplus and shortage over the 25-year planning horizon. The output from these model runs enables MWD staff to analyze the extent to which a particular supply option can add to the region's supply reliability and determine the need for additional supplies. It also helps to determine the appropriate targets for core and flexible supplies.

Core water supplies provide a certain amount of water in every year, regardless of whether surplus supplies already exist. Examples of core supplies include recycled water projects, safe yield groundwater production, and Colorado River Aqueduct (CRA) base supplies. They provide the advantage of greater certainty with respect to the supply yield and cost. The disadvantage of core supplies is that if they are developed solely to meet infrequent dry year supply needs, they can be redundant in surplus years, thus resulting in higher costs. Flexible

water supplies provide supply only when needed (such as a dry year) and do not result in increased amounts of surplus water during years of plentiful supply. Examples of flexible supplies include voluntary water transfers and storage. Flexible supplies tend to be more cost-effective than core supplies, especially in light of the high degree of variability of Metropolitan's existing supplies, but their supply yield may be less certain. Developing a resource strategy that balances both cost and risk requires a combination of core and flexible supplies.

The IRPSIM analyses of the Integrated Resources Plan (IRP) Update report show that Metropolitan can maintain reliable supplies under the conditions that have existed in past dry periods throughout the period 2005 through 2030.

Table 2-7 summarizes results from IRPSIM model studies performed to test the supply reliability of the adopted resource mix. The IRPSIM results show the region's ability to respond in future years under a repeat of the 1990-92 hydrologies, that is, in the case of multiple dry years. This demonstrates that the region can provide reliable water supplies under a series of multiple dry years.

Table 2-7 MWD Multiple Dry-year Supply Capability¹ & Projected Demands AF/Yr

	2010	2015	2020	2025	2030
Current Supplies					
Colorado River ²	722,000	699,000	699,000	699,000	699,000
California Aqueduct ³	912,000	912,000	912,000	912,000	912,000
In-Basin Storage	482,000	480,000	463,000	449,000	449,000
Supplies Under Development					
Colorado River Aqueduct	95,000	460,000	400,000	400,000	400,000
California Aqueduct	330,000	215,000	299,000	299,000	299,000
In-Basin Storage	78,000	103,000	103,000	103,000	103,000
Transfers to Other Agencies	0	(35,000)	(35,000)	(35,000)	(35,000)
MWD Supply Capability	2,619,000	2,834,000	2,841,000	2,827,000	2,827,000
MWD Supply Capability w/ CRA Maximum of 1.25 MAF⁴	2,619,000	2,776,000	2,741,000	2,719,000	2,719,000
Firm Demands on MWD^{5,6}	2,376,000	2,389,000	2,317,000	2,454,000	2,587,000
Potential Reserve & Replenishment Supplies	243,000	377,000	424,000	265,000	132,000

1. Represents supply capability for resource programs under listed year type.
2. Colorado River Aqueduct includes water management program supplies conveyed by the aqueduct
3. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct
4. Maximum CRA deliveries limited to 1.25 Million Acre Feet (MAF) including San Diego County Water Authority / Imperial Irrigation District (SDCWA/IID) Transfer supplies and Coachella and All-American Canals lining supplies.
5. Based on Southern California Association of Governments (SCAG) 2004 Regional Transportation Plan (RTP), San Diego Association of Governments (SANDAG) 2030 forecasts, projections of member agency existing and contracted active conservation and local supplies, remaining regional targets for active conservation and local supplies, SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.
6. Includes projected firm sales plus 70% of projected Interim Agricultural Water Program (IAWP) agricultural sales

Table 2-8 summarizes results from IRPSIM model studies performed to test the supply reliability of the adopted resource mix in a similar analysis using the historic hydrology of 1977, the single driest hydrologic year to date.

Table 2-8 MWD Single Dry-year Supply Capability¹ & Projected Demands AF/Yr

	2010	2015	2020	2025	2030
Current Supplies					
Colorado River ²	722,000	699,000	699,000	699,000	699,000
California Aqueduct ³	777,000	777,000	777,000	777,000	777,000
In-Basin Storage	840,000	838,000	808,000	784,000	784,000
Supplies Under Development					
Colorado River Aqueduct	95,000	460,000	400,000	400,000	400,000
California Aqueduct	330,000	215,000	299,000	299,000	299,000
In-Basin Storage	78,000	103,000	103,000	103,000	103,000
Transfers to Other Agencies	0	(35,000)	(35,000)	(35,000)	(35,000)
MWD Supply Capability	2,842,000	3,101,000	3,102,000	3,078,000	3,078,000
MWD Supply Capability w/ CRA Maximum of 1.25 MAF⁴	2,842,000	3,033,000	3,002,000	2,970,000	2,970,000
Firm Demands on MWD^{5,6}	2,293,000	2,301,000	2,234,000	2,363,000	2,489,000
Potential Reserve & Replenishment Supplies	549,000	732,000	768,000	607,000	481,000

1. Represents supply capability for resource programs under listed year type.
2. Colorado River Aqueduct includes water management program supplies conveyed by the aqueduct
3. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct
4. Maximum CRA deliveries limited to 1.25 MAF including SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.
5. Based on SCAG 2004 RTP, SANDAG 2030 forecasts, projections of member agency existing and contracted active conservation and local supplies, remaining regional targets for active conservation and local supplies, SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.
6. Includes projected firm sales plus 70% of projected IAWP agricultural sales

Table 2-9 summarizes results from IRPSIM model studies performed to test the supply reliability of the adopted resource mix in a similar analysis of expected situation on average over all of the historic hydrologies.

Table 2-9 MWD Average Year Supply Capability¹ & Projected Demands AF/Yr

	2010	2015	2020	2025	2030
Current Supplies					
Colorado River ²	711,000	678,000	677,000	677,000	677,000
California Aqueduct ³	1,772,000	1,772,000	1,772,000	1,772,000	1,772,000
In-Basin Storage	0	0	0	0	0
Supplies Under Development					
Colorado River Aqueduct	0	0	0	0	0
California Aqueduct	185,000	185,000	185,000	185,000	185,000
In-Basin Storage	0	0	0	0	0
Transfers to Other Agencies	0	(35,000)	(35,000)	(35,000)	(35,000)
MWD Supply Capability	2,668,000	2,600,000	2,654,000	2,654,000	2,654,000
MWD Supply Capability w/ CRA Maximum of 1.25 MAF⁴	2,668,000	2,600,000	2,654,000	2,654,000	2,654,000
Firm Demands on MWD^{5,6}	2,040,000	2,053,000	1,989,000	2,115,000	2,249,000
Potential Reserve & Replenishment Supplies	628,000	547,000	665,000	539,000	405,000

1. Represents supply capability for resource programs under listed year type.
2. Colorado River Aqueduct includes water management program supplies conveyed by the aqueduct
3. California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct
4. Maximum CRA deliveries limited to 1.25 MAF including SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.
5. Based on SCAG 2004 RTP, SANDAG 2030 forecasts, projections of member agency existing and contracted active conservation and local supplies, remaining regional targets for active conservation and local supplies, SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.
6. Includes projected firm sales plus 70% of projected IAWP agricultural sales

Table 2-11 illustrates the reliability of CSC water supplies based on existing facilities currently in place. The supply information presented relies on the availability of imported supplies as documented above in the MWD reliability assessment and is based on the City's connected capacity to the MWD/MWDOC importation system. Therefore, it is assumed that the imported water supplies are equal to the physical capacity of the City's importation system. This does not necessarily mean that the amount of imported supply shown on the Tables will be available from MWD at all times. However, MWD as the imported supplier has the capability to provide more than the aggregate of all import demands on its system as demonstrated in Tables 2-7 through 2-9 above. Therefore, as long as MWD has enough supplies, the City has the capability to purchase up to the imported supply figures shown.

This analysis assumes MWD will be able to supply the imported demand under all hydrologic conditions as shown on Tables 2-7, 2-8 and 2-9. In a dry year, the retail demand usually increases due to dry and hot weather. In the case of the City's local supplies, groundwater availability may also be reduced. The greater the net difference means the more critical it is for the City to depend on imported supply to meet its demand.

In order to compare the most critical supply years to the most critical demand years, different water years were selected. For imported water supply reliability MWD defines its water years with different historical hydrologies. According to its draft Regional Urban Water Management Plan (May 2005), MWD defines its' critical multiple-dry years as 1990-1992 and the single-dry year as 1977.

On the other hand, MWDOC has developed a water balance computer model to determine the critical demand periods in its service area. The model simulates the three variables that are retail demand, local supplies, and imported supplies using 83 historical hydrologies from 1922 to 2004. The average of all 83 simulated trials is used to represent a normal condition. Of the 83 years, the hydrologic condition of 1961 yields the highest demand for imported supply, and therefore 1961 is defined as the single-dry year in MWDOC service area. Similarly, the historical sequence of 1959 to 1961 yields the highest demand in three year sequence for imported supply, and is then defined as the multiple-dry years in MWDOC service area. Since the City service area is typical of MWDOC service area, the findings are considered applicable to the City.

Therefore, in Table 2-11 all water demands are based on the MWDOC hydrological data which are summarized in Table 2-10. The reliability of imported supplies on the other hand are based upon the single-dry year repeat of 1977 hydrology; and for multiple-dry years repeat of 1990-92 hydrology.

Table 2-10 Basis of Water Year Data for Demand Determination

Water Year Type	Basis of Water Year (s)			Based on Historical Sequence
Average Water Year	Average of Historical Hydrology			1922 to 2004
Single-Dry Water Year	1961			1922 to 2004
Multiple-Dry Water Years	1959	1960	1961	1922 to 2004

Table 2-11 illustrates the reliability of the City water supplies. The Demand as % of Normal value listed in Table 2-11 below was calculated from MWDOC's Water Balance Model and is also discussed in Section 7, Water Service Reliability.

Table 2-11 San Clemente Supply Reliability – AF/Year

2010	Normal	Single-Dry	Multiple- Dry Water Years		
Recycled Supply Capacity	1,256	1,256	1,256	1,256	1,256
Groundwater Supply Capacity	1,100	1,100	1,100	1,100	1,100
Imported Water Capacity	15,950	15,950	15,950	15,950	15,950
Total Supply Capacity	18,306	18,306	18,306	18,306	18,306
Total Water Demand	12,162	12,836	12,728	12,479	12,836
Demand as % of Normal		105.5%	106.7%	103.7%	105.5%
2015	Normal				
Recycled Supply Capacity	1,767	1,767	1,767	1,767	1,767
Groundwater Supply Capacity	1,100	1,100	1,100	1,100	1,100
Imported Water Capacity	15,950	15,950	15,950	15,950	15,950
Total Supply Capacity	18,817	18,817	18,817	18,817	18,817
Total Water Demand	12,859	13,573	13,431	13,200	13,573
Demand as % of Normal		105.5%	106.7%	103.7%	105.5%
2020	Normal				
Recycled Supply Capacity	2,300	2,300	2,300	2,300	2,300
Groundwater Supply Capacity	1,100	1,100	1,100	1,100	1,100
Imported Water Capacity	15,950	15,950	15,950	15,950	15,950
Total Supply Capacity	19,350	19,350	19,350	19,350	19,350
Total Water Demand	13,394	14,138	14,105	13,833	14,138
Demand as % of Normal		105.5%	106.7%	103.7%	105.5%
2025	Normal				
Recycled Supply Capacity	2,300	2,300	2,300	2,300	2,300
Groundwater Supply Capacity	1,100	1,100	1,100	1,100	1,100
Imported Water Capacity	15,950	15,950	15,950	15,950	15,950
Total Supply Capacity	19,350	19,350	19,350	19,350	19,350
Total Water Demand	13,394	14,138	14,292	13,890	14,138
Demand as % of Normal		105.5%	106.7%	103.7%	105.5%
2030	Normal				
Recycled Supply Capacity	2,300	2,300	2,300	2,300	2,300
Groundwater Supply Capacity	1,100	1,100	1,100	1,100	1,100
Imported Water Capacity	15,950	15,950	15,950	15,950	15,950
Total Supply Capacity	19,350	19,350	19,350	19,350	19,350
Total Water Demand	13,394	14,138	14,292	13,890	14,138
Demand as % of Normal		105.5%	106.7%	103.7%	105.5%

Reliability of a supply will often be impacted by climatic variation. To analyze the changes of reliability due to climate, this Plan relies, for critical demand determination, on the established hydrologic conditions defined by climatic variation of the MWDOC region. Therefore, the average water year, the single dry water year, and the multiple dry water years in MWDOC are based on the MWDOC analysis described above and as shown on Table 2-10.

The City relies on import supplies provided by MWD through MWDOC. Various factors that may have an impact on the reliability of MWD supplies are addressed by MWD in its Regional

UWMP. Through prudent planning and integrated resource implementation, MWD has reduced the inconsistencies associated with supply reliability. However remote, legal, environmental water quality issues may have impacts on MWD supplies. It is felt however climatic factors would probably have more impact than the others mentioned.

Table 2-12 Factors Resulting in Inconsistency of Supply

Name of supply	Legal	Environ- mental	Water Quality	Climatic
Metropolitan Water District of Southern California				x

2.4 Transfer and Exchange Opportunities

The City relies on the efforts of MWD as well as MWDOC to pursue transfer or exchange opportunities. As such there is currently no individual effort by the City.

The MWD 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 program 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 MWD 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 MWD. 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 is in the process of developing long-term relationships with water suppliers in Northern California. These relationships may lead to transfer agreements in the near future. One example of this is the South Feather Water and Power Agency (SFWPA). MWDOC has discussed a potential transfer of water from SFWPA through the State Water Project and MWD distribution system into the MWDOC service area. This transfer would solidify MWDOC dry-year supplies while also helping to reduce dry-year costs. Initial discussions indicate this transfer could be in the range of 10,000 acre-feet per year.

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 MWD water distribution system.

2.5 Customer Use Sectors

2.5.1 Past, Current and Future Water Deliveries

New connections to San Clemente’s service area have increased 8% since 2000, at an average rate of 1.6% per year. Water use during this period reflects an increase of 2%. New connections will slow as the development of vacant parcels is completed. San Clemente’s water service area is anticipated to be “built out” by 2020.

Table 2-13 illustrates past, current, and projected water demand for the years 2000 through 2030 in acre-feet per year.

Table 2-13 Past, Current and Projected Water Deliveries AF/Y

Water Use Sectors	1999-2000		2005	
	No. of Account	Deliveries AFY	No. of Account	Deliveries AFY
Single-Family	10,924	5,723	11,911	5,590
Multi-Family	3,271	1,973	3,410	1,938
Commercial	771	1,100	842	1,077
Landscape	640	2,205	740	2,151
Construction	30	101	20	150
Recycled	3	82	3	552
Total	15,639	11,184	16,926	11,458

TABLE 2-13 (continued) - Past, Current and Projected Water Deliveries

Water Use Sectors	2010		2015	
	No. of Account	Deliveries AFY	No. of Account	Deliveries AFY
Single-Family	12,356	5,595	13,098	5,725
Multi-Family	3,940	1,938	4,176	1,973
Commercial	895	1,073	949	1,094
Landscape	750	2,151	759	2,199
Construction	20	150	15	100
Recycled	5	1,256	10	1,767
Total	17,966	12,162	19,008	12,859

TABLE 2-13 (continued) - Past, Current and Projected Water Deliveries

Water Use Sectors	2020		2025		2030	
	No. of Account	Deliveries AFY	No. of Account	Deliveries AFY	No. of Account	Deliveries AFY
Single-Family	13,633	5,729	13,633	5,729	13,633	5,729
Multi-Family	4,354	1,987	4,354	1,987	4,354	1,987
Commercial	988	1,099	988	1,099	988	1,099
Landscape	770	2,209	770	2,209	770	2,209
Construction	10	70	10	70	10	70
Recycled	15	2,300	15	2,300	15	2,300
Total	19,770	13,394	19,770	13,394	19,770	13,394

2.5.1.1 Residential

Single and multi-family connections have increased 8% since 2000. With the last remaining empty parcels being developed, it is expected that single and multi-family connections will continue to increase at a rate of approximately 1% a year until 2020, at which time residential connections will reach a maximum and stabilize.

2.5.1.2 Commercial

The City of San Clemente has a mix of commercial customers that include retail, offices, restaurants and hotels. Commercial connections have increased 9% since 2000. The Marblehead Coastal development will have 650,000 square feet of commercial/retail space, 1 hotel, 1 movie theater and 5 restaurants. This development is the last large commercial development planned in San Clemente and will attract approximately 70 new commercial customers. Commercial connections will reach peak in 2020 when projected build out is completed.

2.5.1.3 Landscape Irrigation

Landscape irrigation connections presently total 740 and have increased at an average rate of 3% annually since 2000. The Marblehead Coastal development is scheduled to have 10 new irrigation meters installed at 7 parks and 1 sports park. With development approaching build out, irrigation connections are expected to continue at the rate of 0.3% annually until build out is completed in 2020.

2.5.1.4 Construction

Construction hydrant meter connections vary on a monthly basis and depend on building activity within the service area. Construction customers will gradually decrease after development approaches build out.

2.5.1.5 Recycled Water

The CSC currently has 3 recycled water customers. This number will increase beginning in 2010 as recycled water infrastructure and storage improvements are made.

2.5.2 Sales to Other Agencies

The City of San Clemente does not sell water to other agencies.

2.5.3 Additional Water Uses and Losses

Unaccounted water losses average 3% annually. This is due to an aggressive leak detection program that covers approximately 90 linear miles per year. For planning purposes through year 2030, water losses are estimated not to exceed 3% of the projected delivery of water supplies. Unaccounted for water loss is included in the water use totals listed on Tables 2-13 and 2-14.

2.5.4 Total Water Use

Total water use for the City of San Clemente is currently 11,458 AF/Y and is expected to increase to a maximum of 13,394 AF/Y in 2020.

Table 2-14 Total Water Use – AF/Year

	1999-2000	2005	2010	2015	2020	2025	2030
Water Use Total	11,184	11,458	12,162	12,859	13,394	13,394	13,394

2.6 Planned Water Supply Projects and Programs

2.6.1 Groundwater Well

The CSC has contracted with a professional consulting engineering firm to conduct a well replacement study and prepare construction documents for final design of a new or rehabilitated groundwater well. The replacement study will detail the condition of an existing well that is out of service due to sanding issues and recommend if the existing well can be effectively and economically rehabilitated or if the well will have to be replaced. The rehabilitation or replacement of existing well will bring the City's total groundwater production to 1,100 acre feet per year by projects completion in 2007.

2.6.2 Recycled Water Distribution System Expansion

The City of San Clemente Recycled Water Master Plan was completed in 1994 and assessed the feasibility of expanding the recycled water system beyond current users. The Master Plan identified storage and transmission and distribution facilities necessary to efficiently utilize recycled water produced by the City's Water Recycling Plant. Future storage requirements total 4 Million Gallons and the future distribution systems expansion will require 3 new pump stations and 10 miles of piping varying in size from 6 to 18 inches in diameter.

The City is on the waiting list for State Revolving Fund low interest financing. While there are no firm funding sources identified, the City plans to expand the use of recycled water with the addition of the 4 Million Gallon reservoir in 2010, adding 250 AF/Y of recycled water. The additional expansion of the distribution system, including pipelines and pump stations, is tentatively scheduled to begin in 2015 and will initially add 510 AF/Y of recycled water. Additional system expansion planned between 2015 and 2020 will bring recycled water to 1050 AF/Y.

2.6.3 Projected Timeline and Supply

Table 2-15 provides the estimated timeline, projected supply and expected reliability in single-dry and multiple dry years for the City’s planned water supply projects.

Table 2-15 Future Water Supply Projects

Project Name	Projected Start Date	Projected Completion Date	2010				
			Normal-year AF to Agency	Single-Dry Year Yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well Installation	2006	2007	380	380	380	380	380
Recycled Water Reservoir	2008	2010	250	250	250	250	250
Recycled Water Distribution Expansion	2015	2020	0	0	0	0	0

Future Water Supply Projects continued

Project Name	Projected Start Date	Projected Completion Date	2015				
			Normal-year AF to Agency	Single-Dry Year Yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well Installation	2006	2007	380	380	380	380	380
Recycled Water Reservoir	2008	2010	250	250	250	250	250
Recycled Water Distribution Expansion	2015	2020	510	510	510	510	510

Future Water Supply Projects continued

Project Name	Projected Start Date	Projected Completion Date	2020				
			Normal-year AF to Agency	Single-Dry Year Yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well Installation	2006	2007	380	380	380	380	380
Recycled Water Reservoir	2008	2010	250	250	250	250	250
Recycled Water Distribution Expansion	2015	2020	1045	1045	1045	1045	1045

Future Water Supply Projects continued

Project Name	Projected Start Date	Projected Completion Date	2025				
			Normal-year AF to Agency	Single-Dry Year Yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well Installation	2006	2007	380	380	380	380	380
Recycled Water Reservoir	2008	2010	250	250	250	250	250
Recycled Water Distribution Expansion	2015	2020	1045	1045	1045	1045	1045

Future Water Supply Projects continued

Project Name	Projected Start Date	Projected Completion Date	2030				
			Normal-year AF to Agency	Single-Dry Year Yield AF	Multiple-Dry-Year 1 AF	Multiple-Dry-Year 2 AF	Multiple-Dry-Year 3 AF
Well Installation	2006	2007	380	380	380	380	380
Recycled Water Reservoir	2008	2010	250	250	250	250	250
Recycled Water Distribution Expansion	2015	2020	1045	1045	1045	1045	1045

2.7 Development of Desalinated Water

The Municipal Water District of Orange County is pursuing development of desalinated water on behalf of their member agencies. Please refer to MWDOCs Regional UWMP for additional information.

2.8 Current and Projected Supply for Wholesale Water

MWD, MWDOC and the City of San Clemente all work together to meet the City’s present and future needs for dependable water supplies. MWD has increased its ability to supply water, particularly in dry years, through the implementation of storage and transfer programs. MWDOC’s draft 2005 Regional Urban Water Management Plan concluded that they are capable of supplying imported water to meet San Clemente’s demand projections.

The CSC provided MWDOC with purchase projections for the next 25 years; these quantities are listed in Table 2-16.

Table 2-16 Agency Demand Projections provided to Wholesale Suppliers – AF/Y

Wholesaler	2010	2015	2020	2025	2030
MWDOC	9,806	9,992	9,994	9,994	9,994

MWDOC quantified the water available to San Clemente over the next 25 years; these quantities are provided in Table 2-17.

Table 2-17 Wholesaler Identified and Quantified the Existing and Planned Sources of Water – AF/Y

Wholesaler Sources	2010	2015	2020	2025	2030
MWDOC	9,806	9,992	9,994	9,994	9,994

MWDOC detailed the reliability of their supply expected to be delivered to San Clemente during normal, single-dry and multiple-dry years in Table 2-18 below.

Table 2-18 Wholesale Supply Reliability - % of Normal Supply

Wholesaler Sources		Single Dry	Multiple Dry Water Years		
		1961	Year 1 (1959)	Year 2(1960)	Year 3 (1961)
MWDOC	2010	107%	111%	106%	107%
MWDOC	2015	107%	108%	105%	107%
MWDOC	2020	107%	109%	105%	107%
MWDOC	2025	107%	109%	105%	107%
MWDOC	2030	107%	109%	105%	107%

Climate is the factor that could result in inconsistency of MWDOC’s supply, but due to Metropolitan’s planning efforts, the supply is greater than 100% reliable.

Table 2-19 Factors Resulting in Inconsistency of Wholesaler’s Supply

Name of Supply	Legal	Environment	Water Quality	Climatic
MWDOC				x

3 Demand Management Measures

As a Southern California community, the majority of San Clemente's water supply is imported. Water resources are extremely valuable and water use efficiency is an important part of water management in San Clemente.

While San Clemente is not currently a signatory of the *Memorandum of Understanding Regarding Urban Water Conservation in California*, the City participates in local and regional water use efficiency programs that meet memorandum requirements.

On a regional level, MWDOC develops, obtains funding for and manages Demand Management Measure (DMM) programs on behalf of retail water agencies in Orange County. The CSC facilitates local implementation, advertising and dedicates staff time for the regional DMM programs. At the local level, the CSC develops and manages DMM programs for the San Clemente community. The City's expenditures are not specifically tracked for the DMMs detailed in this section and the actual water savings for some of the DMM programs is not quantifiable.

3.1 Residential Water Survey Programs for Single-Family and Multi-Family Residential Customers

The CSC participates in both regional and local programs to implement this BMP.

The City participates in the following MWDOC sponsored regional programs:

Smart Timer Rebate Program

The Smart Timer program rebates residential customers when they purchase and install a new weather based irrigation timer. MWDOC studies indicate that weather based timers typically save 41 gallons of water per day per residential installation and reduce irrigation runoff and pollution by 49%. Approximately 500 residential and commercial installations are targeted in San Clemente over the next few years. The City is supporting this program by contributing matching funds for rebates and dedicating staff resources to promote the Smart Timer program.

Protector Del Agua Landscaping Classes

The residential Protector Del Agua program is a series of landscape and water management classes for homeowners. The City has held many classes in the Protector Del Agua series to help homeowners improve the water efficiency of their landscapes. City resources are dedicated to class advertising and registration and handout and literature development. A City staff member attends each class to provide a presentation about local water issues and remains available to answer questions.

The classes are 4 hours each and cover the following topics:

Basic Landscape Design

- Getting Started
- Design Process
- Planting Design
- Plant Selection

Landscape Plants

- Why go Native
- Plant Selection
- Planting Guidelines
- Maintenance

Landscape Sprinkler Systems

- Irrigation System
- Layout of the Irrigation System
- Components of the System
- Installation and Maintenance

Landscape Watering and Fertilizing

- Scheduling your Irrigation
- Watering Calculator
- Controller Programming Basics
- Fertilizers

Mini Landscape Class

- Combination of the above listed classes

Table 3-1 details the number of classes and participants for the residential Protector Del Agua classes held in San Clemente since 2001. In 2005, the City partnered with the Casa Romantica Cultural Center and Gardens in San Clemente to hold classes at their facility. The Casa Romantica was built in 1928 and is located on an ocean bluff overlooking the San Clemente pier. The Casa Romantica has a native and California friendly plant garden on site that is showcased in each of the residential classes. The unique and special venue has considerably increased class interest and attendance. Providing the Protector del Agua program is made available to member agencies, classes are projected to continue through 2010 at a rate of 3 per year with a target number of participants of 105 annually.

Table 3-1 Protector Del Agua – Residential Participation

Actual	2001	2002	2003	2004	2005
No. of Classes	4	0	2	1	3
No. of Participants	52	0	36	39	111

The City of San Clemente created and participates in the following local programs:

Door Hangers

The CSC developed a door hanger to notify residents when excess irrigation runoff leaves their property. Information about adjusting sprinklers, urban runoff and water quality is explained on the back of the hanger along with a phone number to contact the City for additional information. Utilities staff have the door hangers on their trucks and distribute them as runoff is observed. A copy of the door tag is provided in Appendix C.

High Use Letters

During monthly water meter reading, a high use notification letter is sent to customers whose water use is significantly greater than the previous month (>80%). The letter provides suggestions for checking for toilet leaks and irrigation schedule changes. The letters are sent a week before a customer would receive a high bill, allowing for quick resolution of leaks. A sample high use letter is provided in Appendix D.

Customer Assistance

City of San Clemente staff works with customers to identify and resolve the causes of high water use. Staff will meet customers at their homes and show customers how to read their water meter and will provide toilet leak detection tablets and sample irrigation schedules.

3.2 Residential Plumbing Retrofit

The CSC participated in MWDOC's regional showerhead distribution program. Through this program a total of 2,492 low flow showerheads were installed in San Clemente (Table 3-2).

Table 3-2 Actual Plumbing Retrofits

Actual	1992-2001
No. of Single and Multi Family Devices	2,492
Actual Water Savings - AF/Y	10

In 2001, MWDOC conducted a regional saturation study and concluded that Orange County met the low flow shower head saturation requirement. MWDOC estimates that today low flow showerhead saturation is at nearly 100% for single family homes and at 94% for multi family homes. As a result, MWDOC and the CSC do not have plans for any future showerhead distributions.

3.3 System Water Audits, Leak Detection and Repair

The CSC manages a proactive leak detection and repair program. Approximately 23 miles or 13% of the City's 173 mile distribution system is leak detected quarterly. Leak detection results are maintained in a maintenance management data base program. Any detected leaks are quickly investigated in order to make appropriate repairs. Table 3-3 details the leak detection program from 2001 through 2005 and Table 3-4 details the projected program. Actual water savings are not quantified; however leak detection is a vital part of San Clemente's water supply management.

Table 3-3 Actual System Water Audits, Leak Detection and Repair

Actual	2001	2002	2003	2004	2005
% of Unaccounted Water	3.0%	5.1%	4.9%	4.2%	3.0%
Miles of Distribution Lines Surveyed	78.0	75.8	90.0	89.4	91.6
Miles of Lines Repaired	0.20	0.05	0.24	0.05	0.05
Actual Expenditures - \$	\$144,953	\$20,119	\$191,610	\$24,135	\$24,283

Table 3-4 Planned System Water Audits, Leak Detection and Repair

Planned	2006	2007	2008	2009	2010
% of Unaccounted Water	3.0%	3.0%	3.0%	3.0%	3.0%
Miles of Distribution Lines to be Surveyed	92.0	92.5	93.0	93.5	94.0
Miles of Lines to be Repaired	0.28	0.15	0.15	0.15	0.15
Projected Expenditures - \$	\$350,000	\$150,000	\$150,000	\$150,000	\$150,000

3.4 Metering with Commodity Rates

All utility water accounts are metered and billed monthly based on commodity rates.

3.5 Large Landscape Conservation Programs and Incentives

Irrigation customers are targeted for water conservation due to the large landscaped areas under their control.

CSC participates in the following MWDOC regional programs:

Protector Del Agua Landscaping Classes

The professional Protector Del Agua program is a series of four consecutive landscape and water management classes designed specifically for landscapers. The classes are taught in either English or Spanish. The City has sponsored several Protector Del Agua professional series to help landscapers improve their water management skills. For each class, City resources are dedicated to class advertising and registration, classroom setup and refreshments. A City staff member attends each class and remains available to answer questions

The following is an overview of the class content:

Irrigation Principles

- Basis of water management
- Irrigation Design & Installation
- Irrigation Maintenance
- Irrigation Repair

Irrigation System Troubleshooting

- Irrigation System Failures
- Mechanical Problems
- Hydraulic Problems
- Electrical Problems

Controller Programming

- Controller Features
- How to Program a Schedules
- Program sample cases

Irrigation Scheduling

- When to irrigate
- How much water to apply
- Field techniques

Participants in the class receive a class workbook, hands on training and a certificate of completion. Table 3-5 details the number of classes and participants in the professional Protector Del Agua classes held in San Clemente since 2001.

Table 3-5 Protector De Agua- Commercial Irrigation Management Training

Actual	2001	2002	2003	2004	2005
No. of Classes	8	6	0	0	4
No. of Participants	78	78	0	0	42

As long as the Protector Del Agua program is made available to member agencies, classes are projected to continue through 2010. The City's goal is to hold one series of 4 classes each year. The CSC is currently evaluating the feasibility of collaborating with neighboring cities to host regional workshops in order to increase workshop attendance.

Landscape Performance Certification Program

The Orange County Landscape Performance Certification Program (LPCP) is a water management tool for Cities, Homeowner Associations, Landscapers and Property Managers. Participants in the program use the internet to track their irrigation meter's monthly water use and compare it to a custom water budget. The water based budget enables participants to easily identify areas that are over watered.

Site water budgets are developed using consumption data, site area measurements, local weather and type of plant material. On a monthly basis the CSC provides MWDOC with irrigation consumption data for participants. A water budget is then developed for each irrigation meter in the program and participants are sent an email informing them that their water budget is available on-line to review.

MWDOC studies have shown that county wide, each participating irrigation meter saves an average of 765 gallons of water per day, with a peak summer savings up to 1,300 gallons per day.

Several City resources are dedicated to implementing this program. The CSC held an introductory workshop in June 2002 for 70 property managers and landscapers. Staff continues to invite Homeowner Associations to participate in the LPCP program by scheduling meetings and presentations with property managers. In addition, CSC staff assists customers in determining the irrigated square footage of land served by their irrigation meters.

The participating number of meters and associated acre feet per year water savings are listed in Table 3-6 and projected participants are listed in Table 3-7. The water savings is based on a 765 gallon per day savings rate. Currently 20% of irrigation meters are active in the program, with the City of San Clemente Parks Division as the largest participant.

Table 3-6 Actual Large Landscape Conservation Programs and Incentives

Actual	2001	2002	2003	2004	2005
No. of Budgets Developed	0	38	151	134	168
Actual Water Savings - AF/Y	0	33	129	115	144

Table 3-7 Planned Large Landscape Conservation Programs and Incentives

Planned	2006	2007	2008	2009	2010
No. of Budgets to be Developed	215	250	290	330	365
Projected Water Savings - AF/Y	184	214	249	283	313

This LPCP does not have a formal landscape survey component.

Smart Timer Rebate Program

The Smart Timer program rebates commercial or irrigation meter customers when they purchase and install a new weather based irrigation timer. MWDOC studies indicate that weather based timers typically save 41 gallons of water per day per residential installation and reduce irrigation runoff and pollution by 49%. Approximately 500 residential and commercial installations are targeted in San Clemente over the next few years. The City is supporting this program by contributing matching funds for rebates and dedicating staff resources to promote the Smart Timer program.

3.6 High Efficiency Washing Machine Rebate Programs

The CSC participates in MWDOC and Metropolitan's high efficiency washing machine rebate program. Through this program, San Clemente residents are eligible to receive a \$100 rebate when they purchase a new High Efficiency Clothes Washer (HECW). Machines use 15 to 25 gallons less water per load and can save up to 7,000 gallons of water per year. Machines must be purchased after January 1, 2002 and installed in San Clemente. Effective May 1, 2005, machines must have a water factor of 6.0 or less.

The CSC promotes this program through bill inserts, newsletter articles, the City webpage and at community events. Table 3-8 summarizes HECW rebates and installation in single family homes through this program. Table 3-9 projects future installations.

Table 3-8 Actual High Efficiency Washing Machine Rebates

Actual	2001	2002	2003	2004	2005	Total
\$ Per Rebate	\$100	\$100	\$100	\$100	\$100	\$100
No. of Rebates Paid	32	182	235	170	270	889
Actual Water Savings - AF/Y	0.41	2	3	2	3	11

Table 3-9 Planned High Efficiency Washing Machine Rebates

Planned	2006	2007	2008	2009	2010
\$ Per Rebate	\$100	\$100	\$100	\$100	\$100
No. of Rebates to be Paid	320	365	410	460	505
Projected Water Savings - AF/Y	4	5	5	6	7

3.7 Public Information Programs

The CSC communicates information about water supply, water quality and the importance of water use efficiency through its public information programs. Unless otherwise listed, all programs have been in effect since 2001 and are planned to continue through 2010 and beyond.

Water Bill

In order to assist customers in understanding their water use, bills display customers' water usage in comparison to the same month in the previous year.

High Use Letters

During monthly water meter reading, a high use notification letter is sent to customers whose water use is significantly greater than the previous month. The letter is sent a week before a customer would receive a high bill, allowing for quick resolution of leaks and provides suggestions for checking for toilet leaks and irrigation schedule changes. A sample high use letter is provided in Appendix D.

New Customer Letters

A welcome letter is sent each month to all new utility customers. The letter provides contact telephone numbers and email addresses for various utility divisions, including water quality, water conservation and water reclamation. This program was implemented in 2003. A sample new customer letter is provided in Appendix E.

Door Hangers

The CSC developed a door hanger to notify residents when excess irrigation runoff leaves their property. Information about adjusting sprinklers, urban runoff and water quality is explained on the back of the hanger. Utilities staff have the door hangers on their trucks and distribute them as runoff is observed. A copy of the door hanger is provided in Appendix C.

Bill Inserts, Newsletters and Brochures

Bill inserts, newsletter articles and brochures are used to communicate information on a variety of topics including irrigation, native plants, low flush toilets, high efficiency washing machines and current events.

Classes

The CSC regularly offers Protector Del Agua landscape water management classes for homeowners and professional landscapers.

Community Special Events

The CSC Utilities Division routinely participates in community events to teach residents about water supply, water conservation, wastewater, storm drains and the sewer system. At each event the City hosts a booth with hands on displays and educational games for children. The CSC provides promotional giveaways and educational literature. The annual community events include the San Clemente Ocean Festival, San Clemente Earth Day Fair, Character Counts Fair, and miscellaneous as invited.

Speakers Bureau

CSC staff members provide interested community groups with customized presentations and handouts about current water programs and issues.

Web Site

The CSC's web page (<http://ci.san-clemente.ca.us>) includes water conservation information, including conservation tips, current rebate programs and links to additional resources

Coordinate with Other Government Agencies

The CSC participates in MWDOC's regional Water Use Efficiency and Public Affairs Workgroups. These meetings facilitate increased communication and shared resources with other Orange County water agencies.

3.8 School Education Programs

The City participates in the following MWDOC sponsored regional program:

MWDOC's 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.

Table 3-10 summarizes the MWDOC school education program participation in the San Clemente service area and Table 3-11 projects future participation.

Table 3-10 Actual MWDOC School Education Programs

MWDOC Classroom Presentations and Student Participants						
	2001		2002		2003	
	Presentations	Participants	Presentations	Participants	Presentations	Participants
Grades K-3rd	3	158	10	495	9	783
Grades 4th-6th	4	177	5	239	4	353
Grades 7th-8th	1	73	0	0	0	0
Total	8	408	15	734	13	1,136

	2004		2005	
	Presentations	Participants	Presentations	Participants
Grades K-3rd	6	367	6	290
Grades 4th-6th	5	284	0	0
Grades 7th-8th	0	0	0	0
Total	11	651	6	290

Table 3-11 Planned Presentations for MWDOC School Education Programs

Planned	2006	2007	2008	2009	2010
Grades K-3rd	7	8	8	8	8
Grades 4th-6th	5	6	6	6	6

The City participates in the following locally developed programs:

San Clemente Water Education Program

The San Clemente Utilities Division developed an effective water education program. The education program establishes early habits of water conservation with students, instills them with a desire to protect ocean water quality and provides them with an appreciation of the wastewater treatment process.

The Utilities Division developed distinct curriculum for two elementary school grade levels and high school and community college science classes. Water Use and Conservation presentations are provided to 2nd grade students, and 3rd grade classes participate in Urban Runoff presentations. The in-class presentations are structured around the theme of community and through hands-on lessons students understand how their actions can make a difference. San Clemente High School Environmental Studies and Chemistry students participate in an annual June field trip to the Water Recycling Plant. The tour provides them with insight into operating requirements and regulations associated with water reclamation and water quality. Science classes from the local community college, Saddleback, also participate in annual tours for the Water Recycling Plant.

Utilities water education programs were recognized with public education awards in 2003 by the American Public Works Association and the California Water Environment Association. Table 3-12 summarizes student participation in the San Clemente Water Education Program. Table 3-13 outlines the number of presentations planned in the future.

Table 3-12 Actual City of San Clemente School Education Programs

	2001		2002		2003	
	Presentations	Participants	Presentations	Participants	Presentations	Participants
Grades K-3rd	0	0	21	493	48	1074
High School	2	120	4	230	4	230
College	4	80	4	80	4	80
Total	6	200	29	803	56	1384

	2004		2005	
	Presentations	Participants	Presentations	Participants
Grades K-3rd	40	820	28	568
High School	4	230	7	215
College	4	80	4	80
Total	48	1130	39	863

Table 3-13 Planned Presentations City of San Clemente School Education Programs

Planned	2006	2007	2008	2009	2010
Grades K-3rd	30	35	35	35	35
High School	4	4	4	4	4
College	4	4	4	4	4

Earth Day Grocery Bags

The CSC participated in the Earth Day Groceries Project in 2004 and 2005. This world wide project is designed to promote environmental awareness within communities. Students decorate grocery bags from stores with environmental messages and on Earth Day (April 22nd) customers receive their groceries in the decorated bags. The CSC coordinates this project with local grocery stores and schools. City staff delivers blank bags and picks up decorated bags throughout the community. Over 1,000 bags are decorated by San Clemente students each year as part of the Earth Day Groceries Project. The CSC plans to continue facilitating this project in the future.

Orange County Children's Water Education Festival

The importance of providing water education is recognized on a county wide level. Utilities co-hosted a booth with the County of Orange at the two day Orange County Children's Water Education Festival in 2002, 2003 and 2004. Each year over 500 Orange County students are taught about water quality and urban runoff. Curriculum from San Clemente's third grade water education was used at the festival and remains available for any educator to download from the county website.

3.9 Conservation Programs for Commercial, Industrial and Institutional (CII) Accounts

The CSC participates in the MWDOC sponsored Save Water Save a Buck rebate program. 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. Rebates are available for the following fixtures: ultra low flush toilets and urinals, flush valve retrofit kits, coin/card operated high efficiency commercial clothes washers, cooling tower conductivity controllers, hospital x-ray film processor recirculation systems and water pressurized brooms.

Table 3-14 shows the combined device replacements for commercial, industrial and institutional (CII) customers in the San Clemente service area and Table 3-15 projects future replacements.

Table 3-14 Actual CII Replacements

Actual	2001	2002	2003	2004	2005
No. of CII Device Replacements	0	2	5	49	55
No. of CII ULFT Replacements	0	0	0	11	20
Total	0	2	5	60	75
Actual Water Savings - AF/Y	0	0.05	0.14	1.65	2.06

Table 3-15 Planned CII Replacements

Planned	2006	2007	2008	2009	2010
No. of CII Device Replacements	60	65	70	75	80
No. of CII ULFT Replacements	25	30	30	35	35
Total	85	95	100	110	115
Actual Water Savings - AF/Y	2	3	3	3	3

The Save Water Save a Buck program does not conduct surveys.

3.10 Conservation Pricing

The City of San Clemente has a conservation based rate structure, which creates a financial incentive to conserve water. The water structure includes three rate tiers, \$1.54, \$2.31 and \$3.46 per hundred cubic feet of water (HCF) consumed, with season break points. The first tier is intended to reward outstanding conservation efforts by customers. However, the average household will see some usage in the second tier. The structure is also seasonal, with more water allocated at lower price tiers during summer months than winter. So, if a customer does not reduce their irrigation use in winter, they will most likely pay in the top price tier. The allocation in each price tier for residential single family homes is based on lot size while the allocation for irrigation meter customers is based on the square footage of land irrigated. Table 3-16 details the residential and commercial rate structure and Table 3-17 summarizes the irrigation rate structure.

Table 3-16 Residential, and Commercial Rate Structure

Customer Classification	Tier	Water Rates Per HCF	Break Points (in HCF)	
			Winter	Summer
Single Family Dwellings				
Lot Size 0-7,000 sq. ft.	1	\$1.54	0-9	0-13
	2	\$2.31	10-15	14-21
	3	\$3.46	16+	22+
Lot Size 7-9,000 sq. ft.	1	\$1.54	0-11	0-17
	2	\$2.31	12-17	18-31
	3	\$3.46	18+	32+
Lot Size 9-14,000 sq. ft.	1	\$1.54	0-13	0-20
	2	\$2.31	14-20	21-40
	3	\$3.46	21+	41+
Multi-Family Dwellings				
(Per Dwelling Unit)	1	\$1.54	0-6	0-6
	2	\$2.31	7-9	7-10
	3	\$3.46	10+	11+
Commercial, Industrial, Institutional		\$1.89	Unlimited	Unlimited

Table 3-17 Irrigation Rate Structure

Customer Classification	Tier	Water Rates Per HCF	Break Points (in inches /week)	
			Winter	Summer
Irrigation				
Based on Irrigated sq. ft.	1	\$1.54	0 - 0.2	0 - 0.4
	2	\$2.31	0.2 - 0.5	0.4 - 1.0
	3	\$3.46	0.5+	1.0+

Single family residential customers pay a commodity charge for sewer based on 90% of their water consumption in the wettest winter month. A maximum charge of 20 sewer units per month will be charged to single family dwellings. This charge remains in place for one full calendar year and will be adjusted each year. All remaining customers pay sewerage charges based on 90% of water consumption during the billing period. Table 3-18 summarizes the sewer rate structure.

Table 3-18 Sewer Rate Structure

2005 Sewer Commodity Rates	Sewer Rates Per HCF	Portion of Total Water Used
Single Family Residential	\$1.13	90% of Winter Month Average (WMA*)
Multi-Family Residential	\$1.13	90% during billing period
Mobile Home	\$1.13	90% during billing period
School	\$0.72	90% during billing period
Low Strength Commercial	\$0.85	90% during billing period
Medium Strength Commercial	\$1.11	90% during billing period
Church	\$1.13	90% during billing period
Commercial/Residential	\$1.13	90% during billing period
Medium High Strength Commercial	\$1.98	90% during billing period
High Strength Commercial	\$2.75	90% during billing period

*WMA=January, February, March and April

3.11 Water Conservation Coordinator

One full time position has been dedicated to Water Conservation from 1990 through 1997 and from 2001 through present day. The Water Conservation Coordinator position is planned to be staffed beyond 2010.

3.12 Water Waste Prohibition

MWDOC is developing a list of suggested water waste prohibitions that local agencies can review and adopt. The CSC will review these suggestions to identify ways water waste prohibitions can be incorporated into the existing Water Conservation Chapter 13.12 of the City of San Clemente Municipal Code.

3.13 Residential Ultra Low Flush Toilet Replacement Programs

MWDOC has continuously implemented regional Ultra Low Flush Toilet (ULFT) rebate and distribution programs for single and multi-family customers for 13 years. The CSC supports the ULFT programs by distributing marketing materials and hosting toilet exchange events at City facilities. Table 3-19 and 3-20 detail ULFT replaced in single family and multi-family homes.

Table 3-19 Actual Residential ULFT Replacements

Single Family Actual	1992-2000	2001	2002	2003	2004	2005
No. of ULF Rebates	185	46	99	114	91	100
No. of ULF Distributions	503	549	326	17	370	0
Total	688	595	425	131	461	100
Actual Water Savings - AF/Y	18	16	11	3	12	3

Table 3-20 Actual Multi-Family ULFT Replacements

Multi-Family Actual	1992-2000	2001	2002	2003	2004	2005
No. of ULF Rebates	74	29	28	55	36	40
No. of ULF Distributions	188	43	30	15	50	0
Total	262	72	58	70	86	40
Actual Water Savings - AF/Y	14	4	3	4	5	2

The ULFT distribution program ended in 2004. Any future ULFT replacements will be through the rebate program; projections are listed in Table 3-21.

Table 3-21 Planned Residential ULFT Replacements

Planned	2006	2007	2008	2009	2010
No. of ULF Single Family Rebates	91	94	97	100	102
No. of ULF Multi Family Rebates	38	39	39	40	41
Projected Water Savings - AF/Y	4	5	5	5	5

3.14 Evaluation of DMMs Not Implemented

The CSC is actively pursuing implementation of all DMMs. The City will continue to participate in new programs as they are developed by MWDOC.

4 Water Shortage Contingency Plan

As the water purveyor, the City of San Clemente must provide a minimum supply of water to meet the health and safety needs of the community at all times. The City of San Clemente's response to a water shortage is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage.

4.1 Stages of Action

Rationing stages are automatically prompted by a shortage or by contamination of the water supply. Rationing stages are guided by Chapter 13.12 of the Municipal Code of the City of San Clemente. A copy of Chapter 13.12 is located in Appendix F. The City has developed a three stage-rationing plan to respond to water supply shortages. Rationing stages include voluntary and mandatory reductions of water use and depend on the cause, severity and anticipated duration of a water supply shortage.

Year round, customers are asked to conserve water.

At Stage I and Stage II, mandatory rationing levels are implemented. The City will limit irrigation and construction (hydrant) meter use. The following water uses will be prohibited: washing vehicles, washing exterior structures or hardscape and filling swimming pools.

Under Stage III of mandatory rationing, the City will suspend irrigation and construction (hydrant) meter use and the City Council will meet to consider any additional restrictions.

Table 4-1 identifies San Clemente's water supply shortages and use reduction plans.

Table 4-1 Water Supply Shortage Stages and Conditions

Stage No.	Reservoir Storage	Water Supply Conditions	% Shortage
Year Round	> 35 Million Gallons	Import Shortage of 0-15% Mandatory Customer Reduction	15%
I	30-35 Million Gallons	Import Shortage of 15-20% Mandatory Customer Reduction	20%
II	18-30 Million Gallons	Import Shortage of 20-35% Mandatory Customer Reduction	35%
III	< 18 Million Gallons	Import Shortage of 35-50% Mandatory Customer Reduction	50%+

4.2 Estimate of Minimum Supply for Next Three Years

Table 4-2 describes San Clemente's minimum water supply demands for the three-year period starting in 2006 and is based on the multiple dry year historic sequence. MWDOC indicates 100% reliability for demands during multiple dry water years.

Table 4-2 Three-Year Estimated Minimum Water Supply

source	Normal			Multiple Dry Year		
	2006	2007	2008	2006	2007	2008
Local Supplies	1,510	1,715	1,890	1,510	1,715	1,890
Imported Supply	15,950	15,950	15,950	15,950	15,950	15,950
Total Supply Capability	17,460	17,665	17,840	17,460	17,665	17,840
Total Demand	11,535	11,746	11,929	12,308	12,181	12,591

4.3 Regional Catastrophic Supply Interruption Plan

From a regional perspective, Orange County and all of Southern California is heavily dependent upon imported water supplies from MWD. Imported water is conveyed through the State Water Project (SWP) and Colorado River Aqueduct (CRA), which travel hundreds of miles to reach urban Southern California, and specifically to Orange County. 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. Regional storage for Southern California and Orange County is provided by MWD to mitigate an outage of either the SWP or CRA. The recently completed Diamond Valley Lake is an 800,000 acre-foot reservoir, of which about 400,000 acre-feet of water is reserved for catastrophic emergencies. Protection from catastrophic events such as earthquakes was a major reason for the construction of Diamond Valley Lake.

In 1983, the Orange County water community developed a *Water Supply Emergency Preparedness Plan* to 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 agencies, develop an emergency plan to respond to disasters, and conduct disaster training exercises for the Orange County water community. WEROC is unique in its ability to provide a single point of contact for representation of all water 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 disaster response for the water community. Table 4-3 summarizes possible catastrophe scenarios. For more details on WEROC, please refer to MWDOC Regional Urban Water Management Plan.

Table 4-3 Preparation Actions for a Catastrophe

Possible Catastrophe	Check if Discussed
Earthquake	x
Pipeline Breaks	x
Treatment Plant Outage	x

The City currently relies on imported water for the majority of its supply. In the event of a supply interruption in the importation facilities, the City's, as well as most of South Orange County's, customers would be impacted. In December of 1999, the AMP unexpectedly ruptured, immediately eliminating a major source of supply to South Orange County. MWD was able to repair the pipeline and restore regular operations within seven days. It was fortunate that this pipeline failure occurred during the winter in a relatively accessible location. A more difficult

pipeline repair or a major failure at the Diemer Filtration Plant could result in an interruption in imported supply far greater than seven days. The MWD Administrative Policy requires its member agencies be able to withstand planned supply shutdowns of at least seven days between the months of October and April. This policy is designed to facilitate MWD ability to conduct scheduled maintenance of the supply and treatment systems.

Of all these risks, earthquakes represent the major area of risk to water system reliability. Imported water is treated locally at the Diemer Filtration Plant in Yorba Linda and delivered via two pipelines, the EOCF No. 2 and AMP. To ensure continued water reliability for South Orange County, 11 Orange County agencies, MWD and the U.S. Bureau of Reclamation joined together to fund the South Orange County Water Reliability Study (SOCWRS) - Phase 2 System Reliability Plan. Heading these efforts was MWDOC.

The purpose of this planning effort was to:

- Identify risks, including earthquakes, that pose the greatest threat to the regional water treatment and distribution infrastructure;
- Identify ways to bolster source-of-supply and regional distribution systems, building on earlier engineering investigations and studies;
- Develop a list of projects that accomplish the above objectives, and identify appropriate investments;
- Allow for flexibility in phasing. Most notably project operational dates and sizing should be flexible to account for changes in Local Resource Development (Laps);
- The plan builds on a number of prior studies, including: SOCWRS Phase 1, which served as the foundation for this effort; MWD Central Pool Augmentation Project, currently in project and right-of-way refinement; Santa Margarita Water District Lined and Covered Reservoir investigations to increase local storage for emergency needs; Irvine Ranch Water District Water Resources Master Plan Update and Planning Area-6 Sub-Area Master Plan; and various Orange County Water District plans and groundwater basin operations studies.

An emergency outage of the Diemer Filtration Plant, which is situated adjacent to the Whittier Fault, is judged to be the most severe supply risk to South Orange County. In addition, there are scheduled and sometimes urgent shutdowns of critical facilities that are necessary to make repairs and improvements.

One of these critical facilities, AMP, has experienced one pipeline break and two minor leaks since its construction in 1980. It has been shutdown at various times for inspection and repairs. The pipeline break occurred in December 1999 due to a pressure surge, and was repaired and restored to service in seven days by MWD maintenance crews.

Finally, the EOCF No. 2, a MWD-operated pipeline, is considered to be in good condition, but it is aging, having been constructed in 1961. An outage of this pipeline has a smaller impact in South Orange County since AMP and SCP, the major extension of the AMP into South Orange County, provides about 50% greater capacity than the EOCF No. 2.

There are several faults in the area that could cause earthquake-induced failures. Of most significance is the Whittier-Ellsinore Fault Zone and, to a lesser extent, the Peralta Hills Fault, San Joaquin Hills Thrust Fault, and the Newport-Inglewood Fault Zone. Knowledge of seismic forces has advanced significantly since the design and construction of the Orange County regional water treatment and distribution system. Design standards have therefore advanced for the protection of structures from major earthquakes.

The scenarios evaluated included MWD planned shutdowns of the Diemer Filtration Plant, either a lower or upper AMP emergency outage, and a Diemer Filtration Plant emergency outage. For the latter, the evaluation included sub-cases with and without implementation of the Central Pool Augmentation (CPA) Project by MWD. The CPA Project has the greatest positive impact on the ability of South Orange County to withstand outages; however, its implementation is years away.

The scenarios were also evaluated with and without planned Laps. These projects, such as water recycling and groundwater desalination, reduce the extent of shortages, and therefore the number and size of reliability improvements.

Implementation of the recommended plan will commence upon reaching agreement with the South Orange County agencies on the priority projects, gaining plan acceptance, and developing a business plan and organizational structure for implementation of the plan.

4.4 Local Catastrophic Supply Interruption Plan

In the event of an interruption of water supplies, the City of San Clemente will respond in accordance with the San Clemente Water Utility System Emergency Operation Manual and the regional Water Supply Emergency Response Plan. The CSC is a member agency of the Water Emergency Response Organization of Orange County (WEROC). WEROC manages regional water supply disaster response and training for Orange County. The CSC participates in the following WEROC sponsored events:

- Regularly Scheduled Training Workshops
- Annual Water Supply Disaster Training Exercises
- Emergency Communication Network for Orange County Water Agencies
- Emergency Responses of all Orange County Water Agencies

The CSC generic preparations actions for water supply interruptions include creating an emergency response team, putting employees and contractors on-call, coordinating with other agencies and communicating with the public. Table 4-4 details the City's planned response during specific catastrophic supply interruptions.

Table 4-4 Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Regional power outage	Coordinate communication with San Diego Gas & Electric for restoration of services. Determine scope of power outage and spot mobile generators at pre-determined locations. Ensure all fixed emergency generators at pumping and plant facilities are operating properly. Consult with the California Department of Health (CDHS) for water quality concerns and public notices.

Possible Catastrophe	Summary of Actions
Earthquake	<p>Activate the City's Emergency Operations Center (EOC). Utility staff will be dispatched to assess damage to entire water system. Damage to the system will be prioritized and staff assigned to fix damage to water system or shut down parts that can not be immediately fixed. Facilitate mutual aid from outside agencies through WEROC, California Utilities Emergency Association, and the Orange County Operational Area. Water contamination is expected, and will require purification of all available sources. The importation of water from outside sources may be required. Long term, widespread strict rationing of water, may be considered.</p>
Tsunami	<p>Activate the Emergency Operations Center (EOC). If time allows shut down operations in inundation zone, including but not limited to: wells and pumps. Request California Department of Health Services (CDHS) support in evaluating water contamination via salt water intrusion and backflow of raw sewer water. Facilitate mutual aid from outside agencies through WEROC, California Utilities Emergency Association, and the Orange County Operational Area.</p>
Malicious Act	<p>The Civil Unrest/Terrorism Plan outlines a strategy to (1) prepare for, (2) respond to, and (3) recover from any Civil Unrest or Terrorism [Weapons of Mass Destruction (WMD)] type incident that affects the City. The Civil Unrest/Terrorism Plan:</p> <ul style="list-style-type: none"> • Establishes official City policy for response to Civil Unrest/Terrorism related emergencies; • Identifies authorities and assigns responsibilities for planning and response activities; • Identifies the scope of potential Civil Unrest/Terrorism targets and/or hazards, which form the basis for planning; • Establishes the City Emergency Organization which will manage the emergency response; • Identifies other jurisdictions and organizations with which planning and emergency response activities will be coordinated; • Outlines preplanned response actions which will be taken by City emergency personnel, to mitigate the emergency's effects; and • Describes the resources available to support emergency response activities.
Flooding	<p>Activate the Emergency Operations Center (EOC). If time allows shut down operations in inundation zone, including but not limited to: wells and pumps. Request California Department of Health Services (CDHS) support in evaluating water contamination. Facilitate mutual aid from outside agencies through WEROC, California Utilities Emergency Association, and the Orange County Operational Area.</p>
SONGS - Nuclear Release	<p>Activate the Emergency Operations Center (EOC) upon notice of an "Alert". When activated, the EOC provides:</p> <ul style="list-style-type: none"> • A situation control room wherein all leadership levels of the City can operate and where coordination and decision-making will be accomplished. • Telephone lines for use by response personnel in the EOC. • Direct telephone communications with the County of Orange and contiguous jurisdictions. • Operational Area (OA1) Radio communications with the County of

Possible Catastrophe	Summary of Actions
SONGS - Nuclear Release (cont.)	<p>Orange and other EOCs having this capability.</p> <ul style="list-style-type: none"> • Communication capabilities with law enforcement, fire, and public works via agency portable radios. • Direct dedicated telephone link with the San Onofre Nuclear Generating Station.
Wild Land Fire	<p>Activate Wildland Fire Plan, which outlines a strategy to (1) prepare for, (2) respond to, and (3) recover from any wildland fire or mass conflagration incident that may affect the citizens of San Clemente. The Wildland Fire Plan</p> <ul style="list-style-type: none"> • Establishes official City policy for response to all wildland fire related emergencies, whether natural hazard or man-made; • Identifies authorities and assigns responsibilities for planning and response activities; • Identifies the scope of potential for wildland fire areas, which form the basis for planning, (through hazard-analysis evaluations); • Establishes the City Emergency Organization which will manage the emergency response; • Identifies other jurisdictions and organizations with which planning and emergency response activities should be coordinated; • Outlines preplanned response actions which will be taken by City emergency personnel, to mitigate the emergency's effects; and • Describes the resources available to support emergency response activities.
Water Contamination	<p>The following procedure is in place in the event of water contamination:</p> <ul style="list-style-type: none"> • Dispatch a Utilities operator to the contaminated or potentially contaminated facility. • Inspect the facility; identify whether water system contamination is known to have occurred or is suspected, when the contamination may have occurred, and whether the type of contaminant is known. Remove the source of contamination to prevent it from further impacting the water system, if possible. • If the potential for contamination is determined to represent a possible threat to water quality or public health: <ul style="list-style-type: none"> – Isolate facilities and portions of the distribution system likely to be affected by the actual or potential contamination, – Notify the California Department of Health Services (CDHS) of the actual or potential contamination event, and – Issue direction to Water Utilities in-house chemists to collect and analyze samples of the actual or potential contamination. • Take direction from CDHS relative to public notification orders. • Analyze collected samples to confirm the contamination event and characterize the nature of the contamination, and provide CDHS with applicable data. • Coordinate with CDHS on required procedures to purge contaminated water from the distribution system, to disinfect and clean the system, and to place any offline facilities back into service. • Determine if required procedures/actions can be performed by Utilities crews or whether outside contractor assistance is required. • Cooperate with law enforcement in providing information and evidence relative to the contamination event.

Possible Catastrophe	Summary of Actions
Hazardous Materials Spill/Release	<p>The Hazardous Materials (HAZ MAT) Plan outlines a strategy to (1) prepare for, (2) respond to, and (3) recover from any Haz Mat Incident that affects the City. The HAZ MAT Plan:</p> <ul style="list-style-type: none"> • Establishes official City policy for response to Haz Mat related emergencies. • Identifies authorities and assigns responsibilities for planning and response activities. • Identifies the scope of potential Haz Mat hazards, which form the basis for planning. • Establishes the City Emergency Organization which will manage the emergency response. • Identifies other jurisdictions and organizations with which planning and emergency response activities will be coordinated. • Outlines pre-planned response actions which will be taken by City emergency personnel, to mitigate the emergency's effects. • Describes the resources available to support emergency response activities.
Dam Failure	<p>If time allows shut down operations in inundation zone, including but not limited to: wells and pumps. Request California Department of Health Services (CDHS) support in evaluating water contamination. Facilitate mutual aid from outside agencies through WEROC, California Utilities Emergency Association, and the Orange County Operational Area.</p>

4.5 Prohibitions, Penalties and Consumption Reduction Methods

4.5.1 Prohibitions

The City identifies prohibitions of water use during periods of water shortage and defines voluntary and mandatory prohibitions at specific stages of implementation in Chapter 13.12, Water Conservation of the City of San Clemente Municipal Code. Water shortage prohibitions are listed in Table 4-5.

Table 4-5 Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Irrigation runoff due to broken irrigation system or over watering	Year Round
Use of water resulting in water flow into drainage system for no utilitarian purpose	Year Round
Serving water to patrons at food establishments unless requested by patron	Year Round
Lawn watering restricted to every other day	Year Round
Lawn watering restricted between hours of 9:00am and 5:00pm PST and 9:00am and 6:00pm PDS	Year Round
Grading Projects greater than 1,000 cubic yards prohibited	Seasonal
Developer Landscaping Projects greater than 1 acre prohibited	Seasonal
Municipal and Pacific Golf Course Irrigation Restricted to .750 MGD Recycle Water each	Seasonal
Vehicle washing with exception of commercial washing facilities using recycle water	I
Placing water on sidewalks, driveways and streets	I
Washing exterior homes, businesses or other structures	I
Filling and refilling swimming pools, excluding normal maintenance of water levels due to evaporation	I
Restrict water use at Prima Deshecha landfill to 35,000 GPD	I
Require major water users to reduce usage by set percentage determined by staff	II
Construction water use through hydrant meters and or temporary service restricted to 1,000 GPD	II
Restrict water use at Prima Deshecha landfill to 17,000 GPD	II
Filling swimming pools	III
Reduction or suspension of irrigation use as set by City Council	III
Suspension construction use as set by City Council	III

4.5.2 Consumption Reduction Methods

The City of San Clemente has established reduction methods in Chapter 13.12 of the Municipal Code of the City of San Clemente. Reductions methods and prohibitions for stages I through III are detailed in Table 4-5 above. The cumulative implementation of these prohibitions will result in a 50% reduction in water use.

If deemed necessary under a stage III declaration, the City Council will consider implementing additional regulations and restrictions to conserve water for domestic consumption, sanitation and fire protection. Possible considerations include the imposition of an additional water surcharge above existing water rates and hiring additional staff to monitor water usage and police enforcement requirements.

4.5.3 Penalties and Charges

The imposition of additional water surcharges and penalties above existing City water rates on customers who have failed or refused to reduce their total consumption of water during periods of water shortages is detailed in Chapter 13.12 of the Municipal Code of the City of San Clemente.

Table 4-6 highlights the charges and penalties that can be implemented during water reduction.

Table 4-6 Penalties and Charges

Penalties or Charges	Offence When Penalty Takes Effect
Written warning for Excess Use	First Offence of Infraction
Citation and Fee for Excess Use	Second Offence of Infraction
Misdemeanor for Excess Use	Third Offence of Infraction
Termination of Irrigation Service	Second Offence of Infraction

4.6 Analysis of Revenue Impacts of Reduced Sales During Shortages

A cash reserve fund in the amount of 8% of the total operating expenditures has been established to offset an interruption of revenues from declined water sales and emergency expenditures. Initial responses to revenue declines include deferment of supply purchases, utilization of supply inventory reserves, and reduction of non-essential contractual services and postponement of capital equipment purchases. In addition to the expected decrease of revenue during periods of water shortages, there is a corresponding decrease in expenditures of purchased water supplies and energy costs for water transportation.

San Clemente will closely monitor revenue requirements during extended periods of water shortages and if necessary, will implement special charges or rate adjustments to ensure revenue needs are met.

4.7 Water Use Monitoring Procedure

4.7.1 Ordinance

The City of San Clemente has adopted an ordinance to respond to shortages of water supplies. Chapter 13.12 of the Municipal Code of the City of San Clemente specifically addresses regulations, restrictions and priorities on the delivery, consumption and use of water within the service area of the City of San Clemente during periods of water supply shortages. The municipal code also implements seasonal and year round water conservation measures and

describes appropriate levels of enforcement.

A copy of Chapter 13.12 of the Municipal Code of the City of San Clemente is included as Appendix F.

4.7.2 Monitoring Procedure

During normal supply conditions, potable water production is recorded daily and importation water deliveries are recorded monthly. These totals are reported quarterly to the City Council.

During periods of water shortages, water levels at Bradt Reservoir are used as a barometer to determine water importation supply rates. Bradt Reservoir has a capacity of 48 million gallons and normally operates between 35 and 48 million gallons. Operations benchmarked 4 operating levels, each with defined water use reduction criteria.

Additional water reduction may be implemented in the event of a planned temporary water shortage due to repairs. The Utilities manager and staff will implement voluntary water reduction planning to ensure stored supplies will last for the duration of the planned shortage. Operations will monitor stored water levels daily along with groundwater production rates during the shortage event.

At Stage I, storage levels between 30 MG and 35 MG, the City Manager is advised and directs staff to implement prescribed water reductions. Water use reductions shall be equivalent to the reduced rate of importation and the drop rate of stored water in Bradt. Operations start monitoring stored water level daily along with groundwater production rates.

At Stage II, storage levels between 18 MG and 30 MG shall cause mandatory water use reductions of 15%. Bradt Reservoir water level shall be averaged each Wednesday using previous 7 days level reads. Continued decline of stored water at Bradt shall prompt a modification to percentage reduction requirements sufficient to prevent the volume in Bradt from continuing to decrease.

At Stage III, storage levels less than 18 MG shall cause mandatory water use reductions of 20%. Water use reductions are measured through customer meters and will be calculated on a 7-day weekly average.

During Stage II and III, daily water production, importation flows and Bradt Reservoir levels shall be reported to the Utilities Manager, Public Works Director, City Manager and City Council. Table 4-7 describes the mechanisms used to determine actual reductions.

Table 4-7 Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type of Data Expected
Use average water use to determine reductions	Average reduction
Increase monitoring of importation storage and supplies	Reservoir level data, flow data
Increase monitoring of groundwater production	Compare production data with target production
Increase leak detection monitoring program and system audits	Identify water loss
Increase customer meter reading	Consumption data and high water use
Increase customer meter calibration, repairs and replacement	Increase in meter read accuracy
Automated sensors and telemetry	Monitor reservoir levels

5 Recycled Water Plan

5.1 Coordination

The City of San Clemente owns and operates a Water Recycling Plant located within the City. In 1995, the CSC completed a recycled water use master plan that identified an additional potential demand of 2,500 AF/Y beyond 2005 levels. The plan detailed associated costs with serving the potential demand. Various agencies provided information and assistance in developing the recycled water plan; they are listed in Table 5-1 below.

Table 5-1 Participating Agencies

	Name
Water Agencies	City of San Clemente Utilities Division Municipal Water District of Orange County (MWDOC)
Wastewater Agencies	City of San Clemente Utilities Division South Orange County Wastewater Authority (SOCWA)
Groundwater Agencies	City of San Clemente Utilities Division
Planning Agencies	City of San Clemente Planning Division
Other	California Regional Water Quality Control Board

5.2 Wastewater Quantity, Quality and Current Uses

5.2.1 Wastewater Collection and Treatment System

The City of San Clemente provides wastewater service to most areas within the City boundaries. The 14.7 square mile service area contains approximately 170 miles of gravity sewers ranging in size from 6" to 24" in diameter, 10 pump stations and 5 miles of pressure force mains. A map of the City's wastewater service area is provided in Figure 2.

Wastewater is conveyed to the treatment plant located on Avenida Pico from two pump stations situated in the vicinity of the plant. The pump stations are equipped with variable frequency drives that pace incoming flows to the treatment plant.

Wastewater first enters the treatment plant at the headworks building for metering, screening and grit removal. Incoming flows are accurately metered through a parshall flume, screened through bar screens to remove the larger debris that can clog downstream piping, pumps and equipment, then conveyed into grit tanks for removal of coarse material such as sand and other fine inorganic material particles that cause wear in pumps and occupy valuable space in the digesters.

The first treatment process is primary clarification. The clarifiers provide a quiescent zone to promote the settling of suspended solids. Along with the removal of the majority of these solids a portion of the biological oxygen demanding (BOD) substances and grease and oils are also removed.

The next step is the activated sludge process which consists of aeration basins and secondary clarifiers. The aeration basins contain a population of bacteria and other microorganisms defined as mixed liquor. The mixed liquor culture feeds on the primary effluent suspended material and soluble BOD. Air is pumped and diffused into the aeration basins to provide aerobic conditions and mixing.

The mixed liquor then flows to the secondary clarifiers, which are similar to the primary units. The mixed liquor settles and is collected at one end of the basin. The majority of the settled mixed liquor is returned to the aeration basins to treat incoming primary effluent. To maintain balance in this biological treatment process a portion of the mixed liquor is removed from the process. The clear liquid called secondary effluent then flows through the Land Outfall to SOCWA (South Orange County Wastewater Authority) Ocean Outfall for disposal.

A portion is diverted and pumped to the reclamation process. Reclamation provides further treatment beyond secondary and is commonly referred to as Tertiary Treatment. The process includes chemical addition to promote the formation of floc. Flocculation results in the aggregation of larger secondary effluent suspended solids into larger particles. The flocculated effluent is then filtered and disinfected by chlorine. The tertiary effluent is used within the plant and distributed offsite to the Municipal and Pacific Golf Courses.

Solids removed from the primary clarifiers (primary sludge) and secondary clarifiers (waste activated sludge) are pumped to anaerobic digesters. The digesters further treat the solids to reduce their organic content. The resulting bio-solids are then conditioned, dewatered and trucked to a regional composting site. During inclement weather conditions the bio solids are trucked to the landfill for burial.

5.2.2 Wastewater Flows Collected and Treated

Wastewater flows generated and collected in the service area are treated at the City's Water Recycle Treatment Facility. The total volume of wastewater collected and treated in Table 5-2 is the capacity of the treatment plant. The volume that meets recycled water standards is the amount of recycled water produced annually. These quantities are projected through 2030 and listed in Table 5-2.

Table 5-2 Wastewater Collected and Treated- AF/Year

Type of Wastewater	2000	2005	2010	2015	2020	2025	2030
Wastewater Collected & Treated in Service Area	4,916	5,154	5,248	5,490	5,665	5,665	5,665
Volume That Meets Recycled Water Standard	428	552	1,256	1,767	2,300	2,300	2,300

5.2.3 Wastewater Disposal

Effluent from San Clemente's Water Recycle Treatment Facility enters a land outfall splitter box before discharging to the South East Regional Reclamation Authority's Ocean Outfall. Turbidity levels are monitored at the splitter box and, if within specifications, a portion of secondary effluent is diverted to the reclamation facilities for tertiary treatment. Wastewater disposal through the ocean outfall is listed in Table 5-3.

Table 5-3 Disposal of Wastewater (non-recycled) - AF/Year

Method of Disposal	Treatment Level	2005	2010	2015	2020	2025	2030
Ocean Outfall	Secondary / Tertiary	4,602	3,992	3,723	3,365	3,365	3,365

5.2.4 Recycled Water

5.2.4.1 Recycled Water Currently Used

Recycled water is used for irrigation at the treatment plant and sold to the Municipal and Pacific Golf Courses for irrigation. Current water use is identified in Table 5-4.

Table 5-4 Recycled Water Uses – Actual AF/Year

User type	Treatment Level	2005
Landscape	Tertiary	552

5.2.4.2 Potential and Projected Uses of Recycled Water

5.2.4.2.1 Potential

There are currently 270 acres of land irrigated with recycled water in San Clemente. At build out the total potential recycled water irrigable acreage will be 1,745 acres.

The City identified recycled water service areas that can be served in the future after construction of a planned recycled water storage reservoir. The potential recycled water users include schools, parks and medians, golf courses, slopes and freeway landscaping. Table 5-5 lists the potential recycled water use in acre feet per year out until 2030.

Table 5-5 Recycled Water Uses – Potential AF/Year

User Type	Treatment Level	2010	2015	2020	2025	2030
Landscape	Tertiary	1,256	1,767	2,300	2,300	2,300

5.2.4.2.2 Projected

The feasibility of expanding the recycled water system beyond current users was studied in the City of San Clemente Recycled Water Master Plan. The Master Plan identified storage, transmission and distribution facilities necessary to efficiently utilize recycled water produced by the City's Water Reclamation Plant.

Additional storage capacity and an expanded distribution system will be needed in order to expand beyond the current recycled user sites, Municipal and Pacific Golf Courses and the Treatment Plant. Storage requirements for the recycled water system will total 4.0 Million Gallons. Distribution systems expansion will include 3 new pump stations and 10 miles of piping varying in size from 6 to 18 inches in diameter.

The City is on the waiting list for State Revolving Fund low interest financing. While there are no firm funding sources identified, the City plans to expand the use of recycled water with the addition of the 4 Million Gallon reservoir in 2010. The additional expansion of the distribution system, including pipelines and pump stations, is tentatively scheduled to begin in 2015. Table 5-6 lists the projected recycled water use in acre feet per year out until 2030.

Table 5-6 Projected Future Use of Recycled Water in Service Area – AF/Year

User Type	Treatment Level	2010	2015	2020	2025	2030
Landscape	Tertiary	1,256	1,767	2,300	2,300	2,300

5.2.4.2.3 Comparison of 2000 Projected Recycled Water Use with 2005 Actual Use

The CSC’s recycled water projections for 2005 are 16% more than previously forecasted in the 2000 UWMP for 2005 (Table 5-7).

Table 5-7 Recycled Water Uses – 2000 Projection Compared with 2005 Actual

User Type	2000 Projection for 2005	2005 Actual Use
Landscape	477	552

5.2.4.3 Encouraging Recycled Water Use

The City of San Clemente has advocated the use of recycled water since 1957 and requires recycled systems for new golf courses, median and freeway irrigation projects.

Recycled projects receive a discounted flat rate for using recycled water. The rate is \$100/AF less than the retail cost of potable water. Under the City’s tiered utility billing system the reduced recycled water rate results in substantial savings for customers.

Utilizing recycled water also provides customers with a more reliable supply of water that is not subject to water rationing sanctions.

Table 5-8 Methods to Encourage Recycled Water Use

Actions	AF of Use Projected to Result from this Action				
	2010	2015	2020	2025	2030
Financial Incentives / Long-Term Contracts	1,256	1,767	2,300	2,300	2,300

6 Water Quality Impacts on Reliability

Water supplies are derived from a combination of imported water from MWD, groundwater production and recycled water. There are no anticipated water quality impacts that would either reduce available water supply or cannot be handled through existing management strategies.

6.1 MWD Water Quality Issues

The City obtains a significant portion of its water supply through MWDOC, from MWD. MWD has two primary sources of water, the State Water Project (SWP) and the Colorado River Aqueduct (CRA). For most of Orange County, imported water is served as a blend of both sources with the proportions of the blend dependent upon the year to year availability of CRA and SWP water. Colorado River water tends to be higher in Total Dissolved Solids (TDS) and lower in dissolved organics. SWP water usually has a lower TDS but higher organic material, which can lead to formation of disinfection byproducts (DBPs). MWD recognizes the impacts of water quality on its member agencies and has embraced water quality planning in its Integrated Resources Plan (IRP) and monitoring efforts to address water quality issues. Planning efforts have identified management strategies that allow flexibility in operations to improve water quality and source protection while maintaining reliability. MWD water quality staff conducts both required monitoring and monitoring for constituents of concern that are currently unregulated. MWD performs over 300,000 water quality tests each year.

6.1.1 Total Dissolved Solids Management

The high TDS levels in imported water delivered by MWD leads to increased TDS levels in wastewater, resulting in reduced opportunities for recycled water use. In some locations recycled water with high TDS content does not meet Regional Water Quality Control Board (RWQCB) standards. High levels of TDS diminish the ability to use the groundwater basins for imported water storage. To manage TDS in imported water deliveries MWD has established an operational policy with the objective of delivering imported water to each MWD member agency at a TDS of 500 mg/l or less, whenever feasible.

Colorado River Aqueduct

CRA water has high TDS levels, averaging 650 mg/L during normal water years. TDS levels are dependent upon precipitation in the Colorado River Basin. During drought years salinity levels increase and during years with above normal precipitation salinity levels decline as naturally occurring salt concentrations decline. In times of extreme droughts, salinity levels could exceed 900 mg/L. A long term salinity management strategy is in place at the state and federal level for the Colorado River Basin. Funds are appropriated annually to help fund salinity mitigation and reduction projects throughout the watershed.

State Water Project

The TDS levels in SWP are significantly lower than CRA water, averaging 250mg/L for water delivered via the East Branch of the SWP and 325 mg/L for the West Branch deliveries. West Branch deliveries have higher TDS levels as a result of salt loading in local streams, operational issues, and evaporation losses at Pyramid and Castaic Lakes. TDS levels and available supply vary based on hydrologic conditions in the Sacramento-San Joaquin watersheds, introduction of saline non project waters by upstream parties, as well as saline intrusion in the Sacramento San

Joaquin Bay Delta. Variations of TDS levels over short periods of time are attributed to seasonal and tidal flow patterns presenting a unique challenge in trying to achieve 500 mg/L TDS objective. During periods when TDS levels are high at the SWP intake facilities and in the Colorado River it may not be possible to meet MWD salinity objective and maintain water supply reliability. MWD Board has adopted a statement of needs "to meet Metropolitan's 500 mg/L salinity-by-blending objective in a cost-effective manner while minimizing resource losses and ensuring the viability of recycling and groundwater management programs."

Management Actions

MWD has taken numerous actions to reduce TDS concentrations in its water supplies. For more detailed discussion of the management actions, please refer to MWDOC UWMP.

6.1.2 Perchlorate Management

Perchlorate primarily interferes with the production of hormones for normal growth and development in the thyroid gland. Further research on the health effects of perchlorate is pending. Perchlorate has been detected at low levels in the CRA water supply, but not in the SWP water supply. An exceedance level for perchlorate has not been adopted at this time by California Department of Health Services (DHS). However, DHS has adopted a notification level of 6 µg/L, requiring agencies to inform their governing bodies. Notification to customers of the potential health risks is also recommended. DHS recommends non-utilization of sources with perchlorate levels greater than 60 micro-grams per liter (µg/L).

MWD began monitoring for perchlorate in June 1997 after it was detected in the Colorado River and the Lake Mead outlet at Hoover Dam. The sampling process was able to isolate the source to the Las Vegas Wash and its potential source in Henderson, Nevada. A quarterly monitoring program for Lake Mead was initiated in August 1997, followed by monthly monitoring of the CRA. The Nevada Department of Environmental Protection manages a remediation project in the Henderson area. Since inception the amount of perchlorate entering the Colorado River has been reduced from 900 pounds per day in 1997 to less than 150 pounds per day as of December 2004.

Management Actions

In 2002, MWD adopted a Perchlorate Action Plan. Through its Perchlorate Action Plan, MWD has taken a proactive approach toward addressing a potential water quality issue and ensuring minimal or no water supply losses associated with perchlorate. For more detailed discussion of the management actions please refer to MWDOC UWMP.

6.1.3 Total Organic Carbon and Bromide Management

Treatment of SWP water supplies containing high levels of total organic carbon (TOC) and bromide with disinfectants, such as chlorine, creates Disinfection Byproducts (DBPs) linked to specific cancer types. CRA water does not have high levels of TOC and bromide. TOC and bromide in the Delta region of the SWP are of a significant concern to MWD as concentration levels increase as Delta water is impacted by agricultural drainage and seawater intrusion. In 1998, the United States Environmental Protection Agency adopted more stringent regulations for DBPs that took effect in 2002. Even more stringent regulations are expected to be proposed in 2005.

Management Actions

The MWD Board adopted a Statement of Needs for the CALFED Bay-Delta Program in 1999 stating that MWD requires a safe drinking water supply for compliance with existing and future regulatory requirements. The CALFED Program has developed numerous conceptual actions to improve Bay/Delta water, however MWD asked CALFED to adopt water quality improvement milestones. These milestones are necessary to assure that MWD and its member agencies will be able to comply with pending water quality regulations.

The MWD Board has committed to install ozone treatment processes at its two treatment plants that solely treat SWP water to avoid the production of DBPs through chlorination. In addition to the concern of DBPs, some studies have linked negative reproductive and developmental effects to chlorinated water. The other three treatment plants that receive a combination of SWP and CRA water utilize blending to reduce levels of DBPs below regulatory requirements. By 2010 MWD plans on installing ozonation facilities at the remainder of its treatment facilities removing the percentage of SWP water that requires blending.

6.1.4 Other Contaminants of Concern

MWD has identified various other contaminants of concern to MWD water supply sources. These include MTBE, Arsenic, Uranium as well as emerging contaminants. For detailed discussion of these please refer to MWDOC UWMP.

6.1.5 Water Quality Protection Programs

MWD participates in multiple programs to improve water quality supplies. Programs include: Watershed Sanitary Surveys, Source Water Assessment, support of DWR policies and programs improving the quality of deliveries to MWD, support of the Sacramento River Watershed Program, water quality exchange partnerships and implementation of additional security measures.

6.1.6 Imported Water Quality Impacts on Supply Reliability

Through its management strategies and in coordination with member agencies, MWD is able to provide member agencies supply options that allow local agencies to meet regulatory standards. Currently known and foreseeable water quality issues are already incorporated into existing management strategies and the reliability of MWD supplies for the next 25 years. However, unforeseeable water quality issues could potentially alter MWD water and potentially impact MWD supply reliability.

6.2 Local Groundwater Quality Issues

The CSC groundwater basin meets minimum drinking water criteria with the exception of iron and manganese concentrations. The City maintains a filtration plant for iron and manganese removal. According to the Department of Health Services August 2005 Inspection Report, the percent removal for iron ranges from 95 to 99% and the percent removal for manganese ranges from 90 to 95%. The iron and manganese concentrations in the treated water typically range from non-detect to 0.03 mg/L and 0.002 to 0.21 mg/L respectively.

The CSC's groundwater monitoring program includes daily sampling for chlorine, iron and manganese of both raw water and treated water. Monthly samples for iron, manganese, taste, odor, color, pH, turbidity, chloride and hardness are analyzed.

A potential for seawater intrusion to the groundwater basin exists, however the basin is prudently managed to ensure that this does not occur.

7 Water Service Reliability

San Clemente’s water service is reliable during normal water year, single dry water year and multiple dry water years. San Clemente will be able to meet all of its demand under each water year scenario.

MWDOC evaluated service reliability for this section using their Water Balance Model. The basis for water year scenarios is:

- Normal water year: average hydrology from 1922 to 2004
- Single dry normal water year: 1961 hydrology
- Multiple dry water years: 1959 to 1961 hydrology

7.1 Projected Normal Water Year Supply and Demand

The projected normal year supplies are shown in Table 7-1 and normal year demand in Table 7-2. The normal year supply and demands are compared in Table 7-3. San Clemente is expected to meet all of its demand under a normal water year scenario.

The supply values in the following tables illustrate the reliability of the CSC water supplies based on existing facilities currently in place. The supply information presented relies on the availability of imported supplies as documented above in the MWD reliability assessment and is based on the City’s connected capacity to the MWD/MWDOC importation system. Therefore, it is assumed that the imported water supplies are equal to the physical capacity of the City’s importation system. This does not necessarily mean that the amount of imported supply shown on the Tables will be available from MWD at all times. However, MWD as the imported supplier has the capability to provide more than the aggregate of all import demands on its system as demonstrated in section 2.3, Reliability of Water Supply. Therefore, as long as MWD has enough supplies the City has the capability to purchase up to the imported supply figures shown. This analysis assumes MWD will be able to supply the imported demand under all hydrologic conditions.

Table 7-1 Projected Normal Water Year Supply – AF/Year

	2010	2015	2020	2025	2030
Supply	18,306	18,817	19,350	19,350	19,350
% of Year 2005	106%	109%	112%	112%	112%

Table 7-2 Projected Normal Water Year Demand – AF/Year

	2010	2015	2020	2025	2030
Demand	12,162	12,859	13,394	13,394	13,394
% of Year 2005	106%	112%	117%	117%	117%

Table 7-3 Projected Normal Year Supply and Demand Comparison – AF/Y

	2010	2015	2020	2025	2030
Supply Totals	18,306	18,817	19,350	19,350	19,350
Demand Totals	12,162	12,859	13,394	13,394	13,394
Difference	6,144	5,958	5,956	5,956	5,956
Difference as % of Supply	34%	32%	31%	31%	31%
Difference as % of Demand	51%	46%	44%	44%	44%

7.2 Projected Single-Dry-Year Supply and Demand Comparison

San Clemente's water demands and supplies were projected and analyzed up to 2030 in the event that a single dry year occurs. The projected single dry year water supply and demand are depicted in Tables 7-4 and 7-5 and compared in Table 7-6.

Local supplies, which include recycled water and groundwater, are expected to remain reliable during a single dry year. Imported water supplies are likely to increase during a single dry year scenario due to Metropolitan's system reliability. San Clemente is expected to meet all of its demand under a single dry water year scenario.

Table 7-4 Projected Single Dry Year Water Supply – AF/Year

	2010	2015	2020	2025	2030
Local Supply	2,356	2,867	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950	15,950	15,950
Supply Totals	18,306	18,817	19,350	19,350	19,350
% of Projected Normal	100.0%	100.0%	100.0%	100.0%	100.0%

Table 7-5 Projected Single Dry Year Water Demand – AF/Year

	2010	2015	2020	2025	2030
Demand	12,836	13,573	14,138	14,138	14,138
% of Projected Normal	105.5%	105.5%	105.5%	105.5%	105.5%

Table 7-6 Projected Single Dry Year Supply and Demand Comparison – AF/Year

	2010	2015	2020	2025	2030
Supply Totals	18,306	18,817	19,350	19,350	19,350
Demand Totals	12,836	13,573	14,138	14,138	14,138
Difference	5,470	5,244	5,212	5,212	5,212
Difference as % of Supply	29.9%	27.9%	26.9%	26.9%	26.9%
Difference as % of Demand	42.6%	38.6%	36.9%	36.9%	36.9%

7.3 Projected Multiple-Dry-Year Supply and Demand Comparison

The projected water demand and supply for San Clemente's service area over the next 25 years was analyzed in the event of a multiple dry year, based on 1959 to 1961 hydrology.

The subsequent tables summarize the projected multiple dry year water supply and demand calculations for the San Clemente Service area for periods ending in 2110, 2115, 2020, 2025

and 2030. San Clemente is expected to meet all of its demand during a multiple dry year scenario.

Table 7-7 Projected Supply During Multiple Dry Year Period Ending in 2010 – AF/Year

Supply	2008	2009	2010
Normal			
Local Supply	2,356	2,356	2,356
Imported Supply	15,950	15,950	15,950
Supply Totals	18,306	18,306	18,306
Multiple Dry Year			
Local Supply	2,356	2,356	2,356
Imported Supply	15,950	15,950	15,950
Supply Totals	18,306	18,306	18,306
% of Projected Normal	100.0%	100.0%	100.0%

Table 7-8 Projected Demand Multiple Dry Year Period Ending in 2010 – AF/Year

Demand	2008	2009	2010
Normal	11,929	12,034	12,162
Multiple Dry Year	12,728	12,479	12,836
% of Projected Normal	106.7%	103.7%	105.5%

Table 7-9 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2010 – AF/Year

	2008	2009	2010
Supply Totals	18,306	18,306	18,306
Demand Totals	12,728	12,479	12,836
Difference	5,578	5,827	5,470
Difference as % of Supply	30.5%	31.8%	29.9%
Difference as % of Demand	43.8%	46.7%	42.6%

Table 7-10 Projected Supply During Multiple Dry Year Period Ending in 2015 – AF/Year

Supply	2013	2014	2015
Normal			
Local Supply	2,867	2,867	2,867
Imported Supply	15,950	15,950	15,950
Supply Totals	18,817	18,817	18,817
Multiple Dry Year			
Local Supply	2,867	2,867	2,867
Imported Supply	15,950	15,950	15,950
Supply Totals	18,817	18,817	18,817
% of Projected Normal	100.0%	100.0%	100.0%

Table 7-11 Projected Demand Multiple Dry Year Period Ending in 2015 – AF/Year

Demand	2013	2014	2015
Normal	12,587	12,729	12,859
Multiple Dry Year	13,431	13,200	13,573
% of Projected Normal	106.7%	103.7%	105.5%

Table 7-12 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2015 – AF/Year

	2013	2014	2015
Supply Totals	18,817	18,817	18,817
Demand Totals	13,431	13,200	13,573
Difference	5,386	5,617	5,244
Difference as % of Supply	28.6%	29.9%	27.9%
Difference as % of Demand	40.1%	42.6%	38.6%

Table 7-13 Projected Supply During Multiple Dry Year Period Ending in 2020 – AF/Year

Supply	2018	2019	2020
Normal			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
Multiple Dry Year			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
% of Projected Normal	100.0%	100.0%	100.0%

Table 7-14 Projected Demand Multiple Dry Year Period Ending in 2020 – AF/Year

Demand	2018	2019	2020
Normal	13,219	13,339	13,394
Multiple Dry Year	14,105	13,833	14,138
% of Projected Normal	106.7%	103.7%	105.5%

Table 7-15 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2020 – AF/Year

	2018	2019	2020
Supply totals	19,350	19,350	19,350
Demand totals	14,105	13,833	14,138
Difference	5,245	5,517	5,212
Difference as % of Supply	27.1%	28.5%	26.9%
Difference as % of Demand	37.2%	39.9%	36.9%

Table 7-16 Projected Supply During Multiple Dry Year Period Ending in 2025 – AF/Year

Supply	2023	2024	2025
Normal			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
Multiple Dry Year			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
% of Projected Normal	100.0%	100.0%	100.0%

Table 7-17 Projected Demand Multiple Dry Year Period Ending in 2025 – AF/Year

Demand	2023	2024	2025
Normal	13,394	13,394	13,394
Multiple Dry Year	14,292	13,890	14,138
% of Projected Normal	106.7%	103.7%	105.5%

Table 7-18 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2025 – AF/Year

	2023	2024	2025
Supply Totals	19,350	19,350	19,350
Demand Totals	14,292	13,890	14,138
Difference	5,058	5,460	5,212
Difference as % of Supply	26.1%	28.2%	26.9%
Difference as % of Demand	35.4%	39.3%	36.9%

Table 7-19 Projected Supply During Multiple Dry Year Period Ending in 2030 – AF/Year

Supply	2028	2029	2030
Normal			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
Multiple Dry Year			
Local Supply	3,400	3,400	3,400
Imported Supply	15,950	15,950	15,950
Supply Totals	19,350	19,350	19,350
% of Projected Normal	100.0%	100.0%	100.0%

Table 7-20 Projected Demand Multiple Dry Year Period Ending in 2030 – AF/Year

Demand	2028	2029	2030
Normal	13,394	13,394	13,394
Multiple Dry Year	14,292	13,890	14,138
% of Projected Normal	106.7%	103.7%	105.5%

Table 7-21 Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2030 – AF/Year

	2028	2029	2030
Supply Totals	19,350	19,350	19,350
Demand Totals	14,292	13,890	14,138
Difference	5,058	5,460	5,212
Difference as % of Supply	26.1%	28.2%	26.9%
Difference as % of Demand	35.4%	39.3%	36.9%

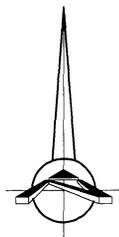
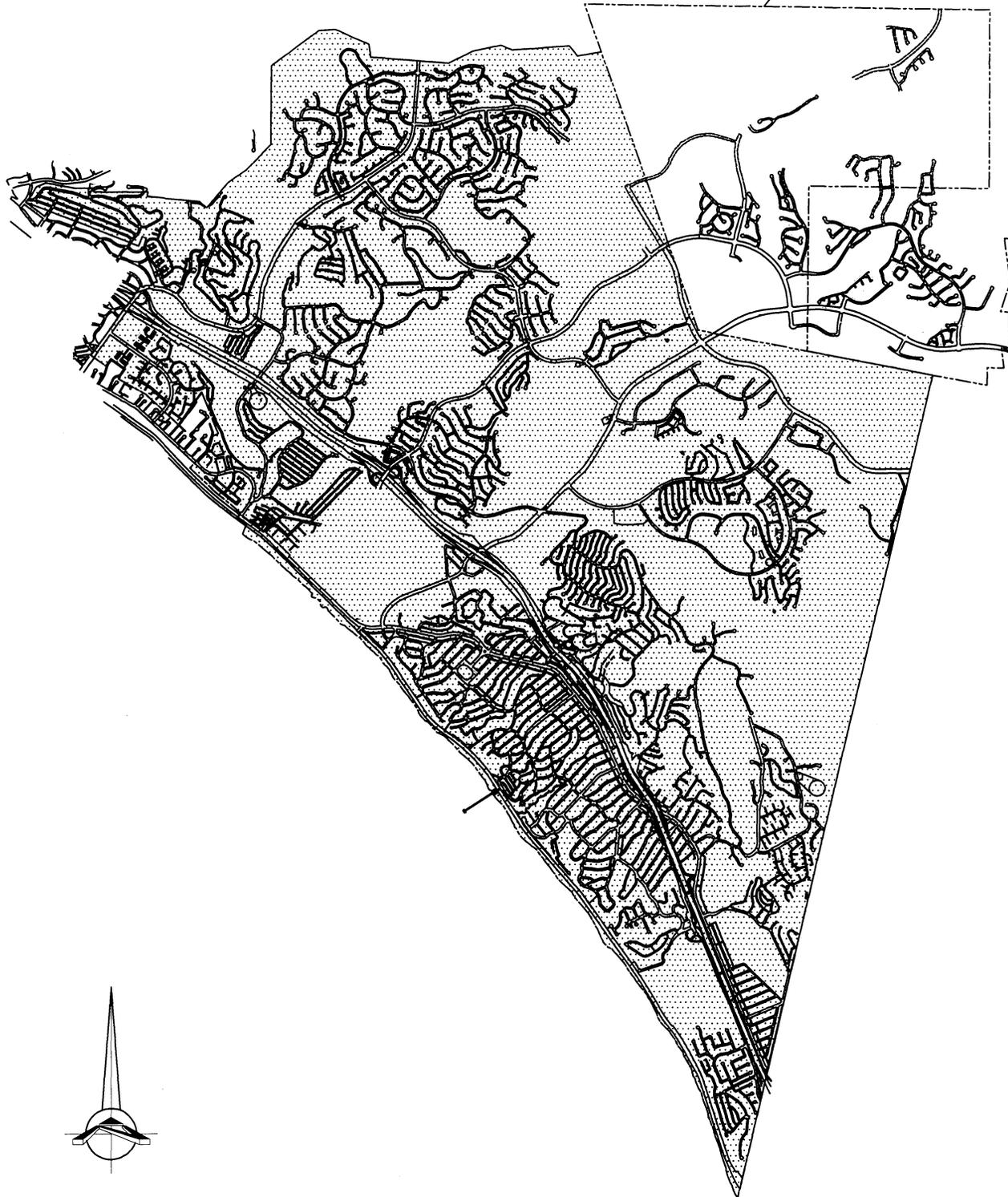
8 Adoption and Implementation

8.1 Plan Adoption

The City of San Clemente Urban Water Management Plan 2005 was adopted by resolution of the City Council of the City of San Clemente on December 6, 2005. The Plan was submitted to the California Department of Water Resources within 30 days of City Council approval. The Resolution of the Urban Water Management Plan is included in Appendix B. Copies of the Plan were made available to the public within 30 days following City Council approval.

9 References

- AKM Consulting Engineers. *City of San Clemente Reclaimed Water Master Plan*. April 1994.
- Boyle Engineering Corporation. *City of San Clemente Groundwater Supply and Management Study*. September, 1987.
- City of San Clemente. *City of San Clemente Municipal Code, Chapter 13.12*. February 1991.
- City of San Clemente. *Emergency Plan, Annex C – Hazmat*. September 2005.
- City of San Clemente. *Emergency Plan - Annex E - Wildland Fires-Conflagration*, September 2005.
- City of San Clemente. *Emergency Plan, Annex G - Civil Unrest-Terrorism*. September 2005.
- City of San Clemente. *Emergency Plan, Annex I – Utilities Department Emergency Plan*. 2004.
- City of San Clemente. *General Plan, Chapter 1 Community Development - 1.0 Land Use Element*. May 1993.
- Department of Health Services. *City of San Clemente Water System Inspection Report*. August 2005.
- Metropolitan Water District of Southern California. *Draft Regional Urban Water Management Plan*. May 2005.
- Municipal Water District of Orange County. *Draft Regional Urban Water Management Plan*. October 2005.
- State of California, Department of Finance, *E-5 City / County Population and Housing Estimates, May 2005*
- State of California, Department of Water Resources. *California Irrigation Management Information System*.
<<http://www.cimis.water.ca.gov/cimis/frontStationDetailData.do?stationId=75>>. 2005.
- State of California, Department of Water Resources. *Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan*. January 2005.



CITY OF SAN CLEMENTE, CA

 = SERVICE AREA

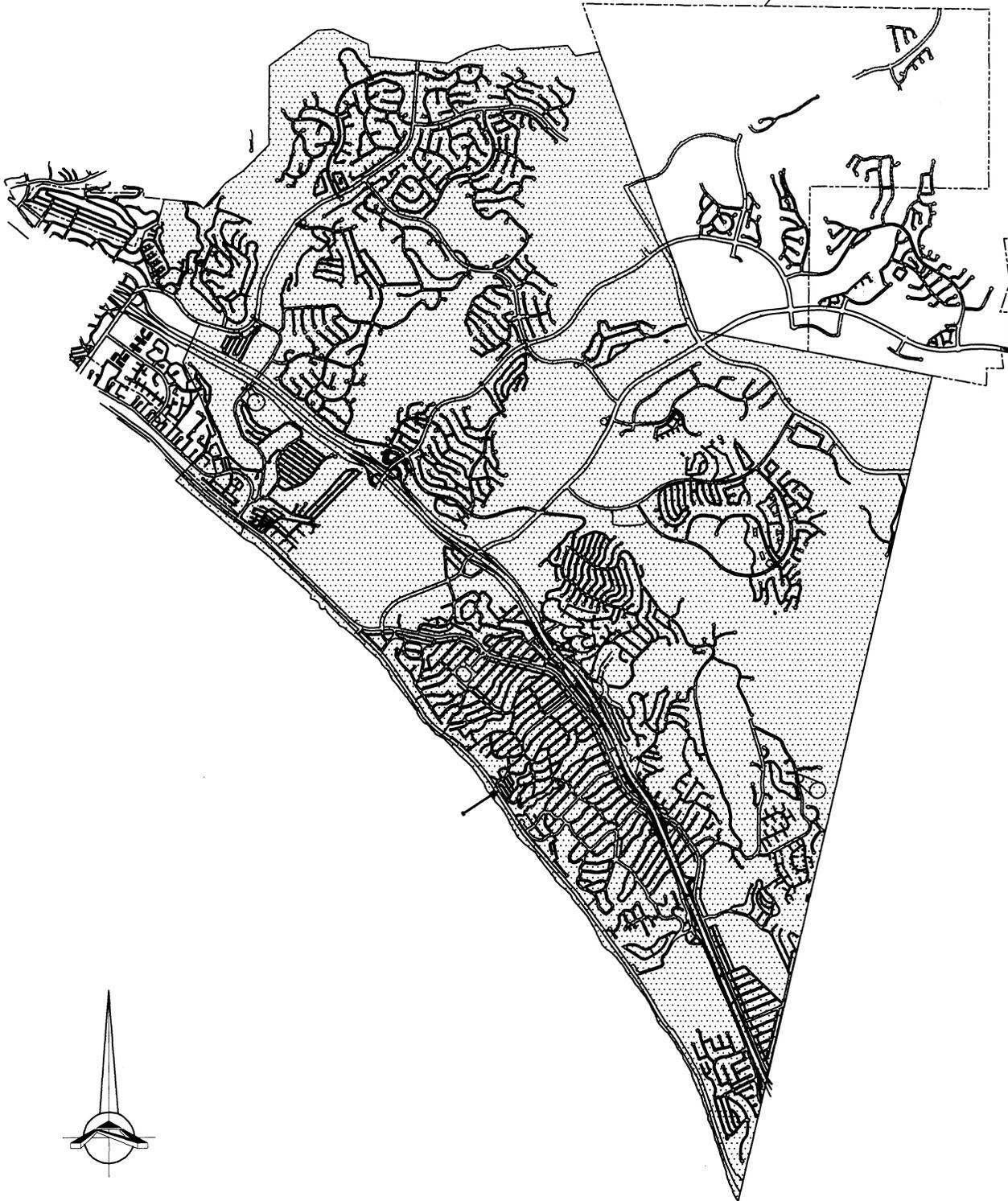
Figure 1

WATER SERVICE AREA

SCALE: N.T.S.

DATE: 09/15/2005

CHECKED BY:



CITY OF SAN CLEMENTE, CA

 = SERVICE AREA

Figure 2

WASTE WATER SERVICE AREA

SCALE: N.T.S.

DATE: 09/15/2005

CHECKED BY:



City of San Clemente Utilities Division

Andrew J. Howard, Utilities Manager

Phone: (949) 366-1553 x150 Fax: (949) 361-8234

HowardA@San-Clemente.org

August 17, 2005

Ruby Maldonado, Section Chief
OC Planning & Development Services
300 N. Flower Street, 3rd floor
Santa Ana, CA 92702

Dear Ms. Maldonado,

The Utilities Division updates its Urban Water Management Plan every five years. This effort helps ensure we can provide the City of San Clemente with a reliable supply of high-quality water to meet current and future demand. Because comprehensive water resource planning is so critical, the California Water Code now mandates all urban water purveyors notify the county they serve of this planning effort. We are sending you this letter as required by law, and to solicit your input on how future land-use planning decisions in San Clemente may impact water consumption over the next 20 years.

The information you provide will be incorporated into the City of San Clemente's 2005 Urban Water Management Plan. The document will then be submitted to the Municipal Water District of Orange County (MWDOC), which is compiling a countywide 2005 Regional Urban Water Management Plan. In turn, MWDOC's plan will be submitted to the Metropolitan Water District of Southern California (MET) for inclusion into its comprehensive 2005 Regional Urban Water Management Plan. MET supplies imported water from Northern California and the Colorado River to nearly 18 million people in six Southern California counties. MWDOC, a MET member agency, is the water wholesaler and resource-planning agency for Orange County. The result of our collaborative efforts will be an all-inclusive plan that will assist us in better managing Southern California's water resources.

If you have a question or comment about our regional planning effort, please contact any one of the following individuals:

City of San Clemente Utilities Division: A. J. Howard, Utilities Manager (949) 366-1553
Municipal Water District: I-Wen Yang, Principal Engineer, (714) 593-5027
Metropolitan Water District: Brendon Goshi, Water Resource Manager, (213) 217-7384

The development of a comprehensive 2005 Regional Urban Water Management Plan is critical to Southern California, the County of Orange and the City of San Clemente. Thank you in advance for your input.

Sincerely,

A handwritten signature in black ink, appearing to be 'AJH' or similar initials, written in a cursive style.

Andrew J. Howard
Utilities Manager

cc: I-Wen Yang, Municipal Water District of Orange County
Brendon Goshi, Metropolitan Water District of Southern California



City of San Clemente Utilities Division

Andrew J. Howard, Utilities Manager
Phone: (949) 366-1553 x150 Fax: (949) 361-8234
HowardA@San-Clemente.org

July 12, 2005

George Buell
City Planner
910 Calle Negocio, Suite 100
San Clemente, CA 926763

Dear George,

The Utilities Division updates its Urban Water Management Plan every five years. This effort helps ensure we can provide the City of San Clemente with a reliable supply of high-quality water to meet current and future demand. Because comprehensive water resource planning is so critical, the California Water Code now mandates all urban water purveyors notify the city they serve of this planning effort. We are sending you this letter as required by law, and to solicit your input on how future land-use planning decisions in San Clemente may impact water consumption over the next 20 years.

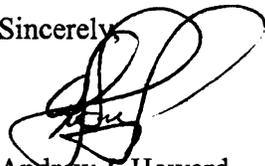
The information you provide will be incorporated into the City of San Clemente's 2005 Urban Water Management Plan. The document will then be submitted to the Municipal Water District of Orange County (MWDOC), which is compiling a countywide 2005 Regional Urban Water Management Plan. In turn, MWDOC's plan will be submitted to the Metropolitan Water District of Southern California (MET) for inclusion into its comprehensive 2005 Regional Urban Water Management Plan. MET supplies imported water from Northern California and the Colorado River to nearly 18 million people in six Southern California counties. MWDOC, a MET member agency, is the water wholesaler and resource-planning agency for Orange County. The result of our collaborative efforts will be an all-inclusive plan that will assist us in better managing Southern California's water resources.

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The development of a comprehensive 2005 Regional Urban Water Management Plan is critical to Southern California, the County of Orange and the City of San Clemente. Thank you in advance for your input.

Sincerely,

A handwritten signature in black ink, appearing to read 'Andrew J. Howard', written over a circular scribble.

Andrew J. Howard
Utilities Manager

cc: I-Wen Yang, Municipal Water District of Orange County
Brendon Goshi, Metropolitan Water District of Southern California

TO BE PUBLISHED: November 22, 2005
November 29, 2005

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN THAT A PUBLIC HEARING WILL BE HELD BY THE CITY COUNCIL OF THE CITY OF SAN CLEMENTE, CALIFORNIA, RELATIVE TO THE FOLLOWING:

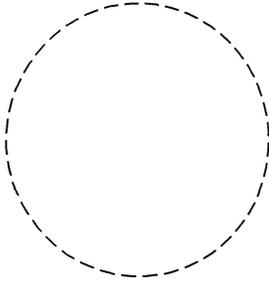
2005 Urban Water Management Plan - To consider the adoption of the 2005 Urban Water Management Plan. The California Urban Water Management Planning Act of 1983 requires urban water suppliers develop a water management plan that addresses water demands, supplies, conservation and efficient use of water supplies. The Act also requires Urban Water Management Plans to be updated every 5 years. A copy of the 2005 Urban Water Management Plan is available at City Clerks Office located in City Hall at 100 Avenida Presidio.

If you challenge the above matter in court, you may be limited to raising only those issues you or someone else raised at the Public Hearing described in this notice, or in written correspondence delivered to the City of San Clemente at, or prior to, the Public Hearing.

NOTICE IS FURTHER GIVEN that said Public Hearing will be held at the meeting of the City Council on **December 6, 2005 at 7:00 p.m. in the Council Chambers, located at 100 Avenida Presidio, San Clemente, California.** All interested persons are invited to express their opinion to the City Council for or against the request by attending the Public Hearing or by submitting written communication to the City Clerk. For further details, you are invited to contact the City Clerk's Department, located at 100 Avenida Presidio, San Clemente, California or by telephone at (949) 361-8301.

MYRNA ERWAY
City Clerk and Ex-Officio
Clerk of the Council

Help Protect Ocean Water Quality
and Conserve Water



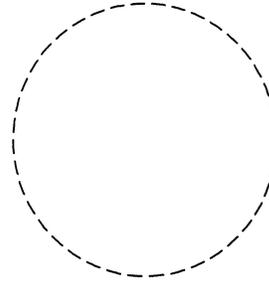
City of San Clemente staff observed the following sources of water runoff or pollution in your area:

- Irrigation Runoff from Your Property
- Water Flowing from Your Curb Drain
- Yard Waste (leaves, grass, mulch)
- Pet Waste
- Other: _____

Comments:

Remember, if it's not raining, there should be no water in the gutters or storm drains!

For more information or to report suspicious discharges or spills to the storm drain system, please call the 24-hour San Clemente Utilities Division Hotline at (949) 366-1553.



What is Urban Runoff?

Urban runoff occurs when rain or water from other sources (like watering your lawn) carries litter, pet waste, garden chemicals and yard clippings into storm drains. Because the storm drains are separate from the sewer system, this water does not receive treatment before flowing into the ocean.

Tips for your yard

- Adjust sprinklers to avoid over watering
 1. Observe how long it takes before your lawn starts "shedding" water into the gutter.
 2. If water flows from your yard or curb drain, adjust your timer to the last minute before the water started to run off the lawn.
- Do not use fertilizers, insecticides or herbicides before a predicted rainstorm or sprinkler cycle. The rain can wash the products into the storm drain.

You can help protect the quality of our beaches by eliminating a major source of runoff...

Excess Irrigation.





City of San Clemente Utilities Division

Phone: (949) 366-1553 Fax: (949) 361-8234
WaterSewer@San-Clemente.org

October 28, 2005

John Doe
1234 Main St.
San Clemente, CA 92673

**RE: Confirmed high water meter read at: 1234 Main St.
Account #: 123456-78**

Dear Customer:

Our data indicates that the water consumption at the above referenced address is greater this month when it is compared to average use at the property. You used 20 units of water last month (note that 1 unit = 748 gallons) and this month you used **54** units. The meter read was confirmed by our field crew.

Please check your water system for potential leaks. The most common sources of increased water consumption are toilet leaks and changes in irrigation system programming. Please contact us with any questions.

Sincerely,

City of San Clemente Utilities Division

For questions, please reference **Day 3**



City of San Clemente Utilities Division

Andrew J. Howard, Utilities Manager
Phone: (949) 366-1553 Fax: (949) 361-8234

October 8, 2005

John Doe
1234 Main St.
San Clemente, CA 92673

Dear John Doe

Welcome to the City of San Clemente. As a new San Clemente utilities customer we want to provide you with some basic information about your city provided utilities. The Utilities Division is a full service operation that oversees the public water, sewer, water reclamation, and drainage system.

We have provided you with a contact list for various Utility Division and City functions and services in case you have a need to contact us for any reason. A list of *Recycling Do's & Don'ts* has also been provided on the reverse side to assist you in your recycling efforts.

The Utilities Division phone service, (949) 366-1553, is monitored 24 hours a day, either by Utilities staff during normal working hours or a professional answering service during off hours, weekends and holidays. The answering service will immediately contact on-call Utilities Division staff for all water, sewer or storm drain emergency calls and reports of suspected hazardous waste spills or illegal dumping.

Again welcome to our community and if we can be of further service, please do not hesitate to contact us if you have any questions about your utility service or, if you observe any type of water, sewer or storm drain problems.

Sincerely,

Andrew J. Howard
Utilities Manager

13.12.010 Seasonal Water Conservation Periodic Conservation Measures.

Except for the criteria in Section 13.12.020 of this chapter, the following provisions, known as “conservation period measures,” shall be effective during the period from June 15th through September 15th (hereinafter, the “seasonal water conservation period”):

- A.** The City will read all irrigation meters within the first week following the enactment of the ordinance codified in this section. The meters will be read at least three (3) times during the seasonal water conservation period. For the purposes of this chapter “irrigation meters” are those water meters issued by the City to customers for the purpose of irrigating landscape, and designated as such under the City’s billing records.
- B.** In order to obtain irrigation water during the seasonal water conservation period, all water users with irrigation meters shall be required to provide documentation to the City, which is verifiable by City staff, of the square footage of land served by these meters. Such documentation shall be submitted to the City by no later than April 15, 1990. The City shall provide no more than six hundred twenty-three (623) gallons of irrigation water per week (equivalent to an inch of water applied to one thousand (1,000) square feet) to irrigation water users who fail to timely provide the City with the aforementioned documentation. Use of water for irrigation purposes in excess of this amount, without properly submitted documentation, shall constitute an infraction, punishable by a five hundred dollar (\$500.00) fine for the first offense and termination of irrigation water service under the procedures provided in Section 13.12.060 of this chapter for the second offense.
- C.** If reclaimed water is made available to the Municipal Golf Course and the Pacific Golf Club from the City’s reclaimed water treatment system, weekly average golf course irrigation usage will be restricted to no more than seven hundred fifty thousand (750,000) gallons per day (“gpd”) of reclaimed water for the Pacific Golf Club, and five hundred seventy-five thousand (575,000) gpd of reclaimed water for the Municipal Golf Course. If chlorinated effluent is made available to the Pacific Golf Club and/or well water is made available to the Municipal Golf Course, weekly average golf course irrigation usage will be restricted to no more than seven hundred fifty thousand (750,000) gpd of chlorinated effluent for the Pacific Golf Club and five hundred seventy-five thousand (575,000) gpd of well water for the Municipal Golf Course. If such reclaimed water, chlorinated effluent or well water is available, the aforementioned facilities shall not be entitled to use domestic water for irrigation purposes.
- D.** No grading projects greater than one thousand (1,000) cubic yards will be allowed during the seasonal water conservation period, unless the water used is from a source other than the City’s potable water system. Use of water from this alternative source must be approved in writing by the City’s Utility Manager prior to use.

The City Council may hold the restriction imposed pursuant to this subsection in abeyance for projects which the City Council, in its sole discretion, determines convey a substantial benefit upon the public. In any situation where the City Council holds the above-referenced restriction in abeyance, the City Council may impose reasonable conditions on the project to mitigate the project's impact on the City's water supply. For the purposes of this subsection, a project which "conveys a substantial public benefit" shall be a project which benefits the public by either the creation of infrastructure which benefits the City, the provision of public services, or by providing some other substantial benefit to the health, safety or welfare of the citizens of the City.

- E.** Except for plantings using no more than one (1) inch of water depth per week during the seasonal water conservation period, installation of landscaping in projects involving a development which requires the installation of landscaping for areas which total more than one (1) acre, including slopes, between May 15th and September 15th will be prohibited. Delays of landscape installation on slopes or common areas requiring landscaping as a condition of project approval will require the following action by the developer:
1. The developer will stabilize the unplanted areas with anti-erosion measures, which have been approved in writing by the City Engineer; and
 2. Prior to the issuing of any building permits for the project, the developer will provide the City with an irrevocable letter of credit in a form approved by the City Attorney in an amount equal to one hundred twenty-five (125) percent of the estimated cost of completing and maintaining the required landscaping for one (1) year after installation. The landscaping will be installed by the developer at the expiration of the aforementioned period, at which point the letter of credit shall be returned upon proof, acceptable to the City, that the developer has installed the landscaping as required. Failure to install the required landscaping within six (6) months of the expiration of the aforementioned period shall result in the City drawing upon the letter of credit to complete the landscaping installation as required.

The City Manager shall have the authority, based upon the advice of the Utility Division to hold the provisions of this subsection in abeyance during periods in which the City has ample water supply for the anticipated demands of its customers or when, in his or her discretion, he or she believes that permitting such planting is in the interest of the City.

- F.** Water supplied outside the City to uses other than the Prima DeSchecha sanitary landfill will be restricted to the amount of water as determined by staff to be necessary to sustain domestic needs such as drinking and sewage operations.
- G.** At least twenty (20) days before the commencement of the seasonal water conservation period, the City shall provide public notice of the conservation period measures, as follows:
1. Place an advertisement, at least three (3) inches by four (4) inches in the San Clemente Sun-Post newspaper, or the then-current newspaper of

general circulation within the City, describing the current extent of the water shortage condition, and requesting that all City residents, water users and consumers practice good water conservation techniques in order to conserve water; and

2. Cause to be broadcast, on the Dimension Cable television channel or the then-current local origination cable television channel serving the City, a public service announcement describing the current extent of the emergency water shortage condition, and requesting that all City residents, water users and consumers practice good water conservation techniques in order to conserve water; and
3. Transmit written notice to all water users (commercial, industrial, and residential) describing the current extent of the emergency water shortage condition, and setting forth the restrictions and requirements imposed pursuant to this section and Section 13.12.020. (Prior code § 32-63)

13.12.020 Year-round water conservation measures.

A. Prohibited Acts. It shall be unlawful for any person, at any time, to do any of the following:

1. Conducting landscape or other irrigation in such a manner as to cause water to flow into the gutter or off of the property being irrigated due to broken sprinklers or excess watering. Minor runoff such as a thin wetted area in the gutter or on sidewalks are undesirable but are not to be considered "flowing into the gutter";
2. Using water in any manner which results in water flowing into the drainage system for no utilitarian purpose;
3. Serving water to patrons of a food service establishment unless requested to do so by such patrons.

B. The following year-round restrictions are hereby imposed upon water users within the City:

1. Lawn watering and landscape irrigation on residential and commercial lots or parcels within the City having a street address number ending in an odd-numbered digit or a letter shall be restricted to odd-numbered days only; and

Lawn watering and landscape irrigation on residential and commercial lots or parcels within the City having a street address number ending in an even-numbered digit shall be restricted to even-numbered days only. This subdivision shall not apply to irrigation water users.

2. No person shall water their lawn or landscaping or permit their lawn or landscaping to be watered between the hours of nine (9:00) a.m. and five (5:00) p.m. Pacific Standard Time, and nine (9:00) a.m. and six (6:00)

p.m. Pacific Daylight Savings Time. The above notwithstanding, a lawn or landscape watering system may be operated between nine (9:00) a.m. and six (6:00) p.m. for the purpose of installing or repairing the same, provided the system is being operated by an irrigation systems maintenance person.

3. Automatic sprinkler systems shall be set to water every other day or less.
- C. Any person violating the restrictions imposed under this section shall be warned of the violation, in writing. Any subsequent violations by that person shall be punished as provided in Section 13.12.060 or 13.12.070 of this chapter. (Prior code § 32-64)

13.12.030 Reservoir storage between thirty and thirty-five million gallons--Procedures.

- A. Upon receiving information from TCMWD that the quantity of water held in storage in TCMWD's Roy Bradt Reservoir (hereinafter, the "Bradt Reservoir") is less than thirty-five million (35,000,000) gallons, the City Manager will direct staff to immediately take the following actions:
1. Transmit written notice to all major water users (as determined by the City Utilities Manager or Water Division staff) within the water service area of the City, describing the current extent of the water consumption by a percentage determined by staff to be necessary to sustain adequate water supply for the City. The percentage reduction will be based on the rate of supply to the City and the rate the reservoir's water level is dropping. For the purposes of this chapter, "major water user" is defined as any person using over one thousand (1,000) gpd for irrigation or construction support purposes;
 2. The City Utilities Manager shall take the following actions:
 - a. Place an advertisement, at least three (3) inches by four (4) inches in the San Clemente Sun-Post or the then-current newspaper of general circulation within the City, describing the current extent of the water shortage condition, setting forth the restrictions and requirements imposed pursuant to subsections (A)(1) and (B) of this section;
 - b. Cause to be broadcast, on the Dimension Cable television channel or the then-current local origination cable television channel serving the City, a public service announcement describing the current extent of the emergency water shortage conditions, setting forth the restrictions and requirements imposed pursuant to subsections (A)(1) and (B) of this section.
- B. When the Bradt Reservoir contains less than thirty-five million (35,000,000) gallons of water, the consumption or use of potable water for the following purposes within the water service boundaries of the City shall be prohibited:

1. Washing automobiles, trucks, boats and other vehicles; provided, however, the following activities shall not be prohibited:
 - a. (i) Commercial car and vehicle washing utilizing recycled water; and (ii) private vehicle washing using buckets, or other devices which prevent water from flowing during the actual washing activities except for the purpose of rinsing a vehicle;
2. Washing or placing water on streets or sidewalks;
3. Washing or placing water on the exterior portions of houses, businesses and other structures;
4. Filling or emptying and refilling swimming pools, excluding normal maintenance of water levels due to evaporation; and
5. The use of over thirty-five thousand (35,000) gallons per day of water by the Prima DeSchecha sanitary landfill. (Prior code § 32-65)

13.12.040 Reservoir storage between thirty and eighteen million gallons--Procedures.

- A. Upon receiving information from TCMWD that the quantity of water held in storage in the Bradt Reservoir is less than thirty million (30,000,000) gallons, or upon receiving information that Metropolitan Water District of Southern California has instituted a program requiring a mandatory fifteen (15) percent reduction in water usage the following restrictions, priorities and actions shall be immediately implemented:
 1. No person or entity within the City using a temporary fire hydrant meter from the City, or otherwise using water through a temporary City water service, shall use in excess of one thousand (1,000) gpd of such temporary water service water;
 2. Require all major water users to reduce their usage by the percentage determined by staff to be necessary to sustain adequate water supply for the City. Such percentage shall be based both on the rate of supply to the City and the rate the water supply in the reservoir is dropping. Any use in excess of this amount shall constitute an infraction punishable by a one hundred dollar (\$100.00) fine for the first offense and termination of water supply under the procedures provided in Section 13.12.060 for the second offense;
 3. Restrict the Prima DeSchecha sanitary landfill's water usage to seventeen thousand (17,000) gallons per day.
- B. The City Council may hold the restrictions imposed pursuant to subsection A of this section in abeyance for projects which the City Council, in their sole discretion, determines convey a substantial benefit upon the public. In any

situation where the City Council holds the above-referenced restrictions in abeyance, the City Council may impose reasonable conditions on the project to mitigate the project's impact on the City's water supply. For the purpose of this section, a project which "conveys a substantial public benefit" shall be a project which benefits the public by either the creation of infrastructure which benefits the City, the provision of public services, or by providing some other substantial benefit to the health, safety or welfare of the citizens of the City.

- C. The City Utilities Manager shall take the following actions:
1. Place an advertisement, at least three (3) inches by four (4) inches in the San Clemente Sun-Post or the then-current newspaper of general circulation in the City, describing the current extent of the water shortage condition, setting forth the restrictions and requirements imposed pursuant to subsections A and C of this section; and
 2. Transmit written notice to all major water users identified pursuant to Section 13.12.030(A) describing the current extent of the water shortage, setting forth the restrictions and requirements imposed pursuant to subsection A of this section; and
 3. Transmit written notice to all water users (commercial, industrial and residential) describing the current extent of the emergency water shortage condition, setting forth the restrictions and requirements imposed pursuant to subsection A of this section, as it relates to their class of use;
 4. The volume in the Bradt Reservoir will be noted each Wednesday of every week. Each week that the water level in the Bradt Reservoir falls, staff shall modify the percentage reduction requirements imposed pursuant to subsection (A)(2) of this section in an effort to prevent the volume in the Bradt Reservoir from continuing to lower. The public will be notified of the new restrictions by the same procedure identified in subsection (C)(1), (2) and (3) of this section. (Prior code § 32-66)

13.12.050 Reservoir storage below eighteen million gallons-- Procedure--Emergency.

- A. Upon receiving information from TCMWD that the quantity of water held in storage in the Bradt Reservoir is less than eighteen million (18,000,000) gallons, upon receiving information that Metropolitan Water District of Southern California has instituted a program requiring a mandatory twenty (20) percent reduction in water usage, or upon determining that an emergency situation has been created as a result of a drastic reduction of availability of water supply to the City, the following restrictions, priorities and actions shall be immediately implemented:
1. All water used for irrigation by any person or entity on any lot or parcel within the boundaries of the City for commercial, industrial, recreational or institutional landscaping shall be restricted to the weekly percentage prescribed in Section 13.12.060(C). The average landscape irrigation water consumption for each lot or parcel shall be calculated on the basis

of a seven (7) day weekly average. Use in excess of this amount shall constitute an infraction punishable by a one hundred dollar (\$100.00) fine for the first offense and termination of water supply under the procedures provided in Sections 13.12.060 and 13.12.070 for the second offense.

2. The filling of new or emptied swimming pools from the City's potable water system.
- B.** The Mayor may call a special meeting of the City Council to consider the extent of the emergency water shortage condition then prevailing, and assess the amount of water consumption and usage within the City and its impact upon the City's ability to deliver water for human consumption, sanitation and fire protection within the City. At such special meeting, the City Council may consider any additional regulations, restrictions, priorities or action in response to the then-prevailing water shortage emergency condition to conserve water for domestic consumption, sanitation and fire protection, including but not limited to the following:
1. The imposition of an additional water surcharge above and beyond the existing City water rates on all City residents, water users and water consumers who have failed or refused to reduce their total consumption of water the percentage required by Section 13.12.060(C);
 2. The hiring of additional City staff to monitor water usage, provide assistance to water users to reduce their water consumption, and to police the enforcement of the requirements, restrictions and priorities adopted by the City in response to the emergency water shortage condition;
 3. The suspension of all sales and deliveries of City water, or use of City water, for construction or grading purposes;
 4. The reduction or prohibition of consumption or use of City water, by residential, recreational, commercial, industrial and institutional water uses for landscape irrigation purposes; and
 5. The initiation or implementation of additional or innovative actions to increase the supply of water available to the City and to conserve the City's existing water supply. (Prior code § 32-67)

13.12.060 Enforcement measures for irrigation use.

- A.** The City shall monitor and enforce the restrictions established in Section 13.12.010 of this chapter.
- B.** In the event that any person subject to the restrictions in this chapter uses water for irrigation purposes in excess of their allocated share, such person shall be denied irrigation water until such time as the quantity of irrigation water actually used since the beginning of the seasonal water conservation period is less than

equal to their cumulative allocated share as measured from the beginning of the seasonal water conservation period.

- C. Except as otherwise provided herein, in the event that any person subject to any of the restrictions set forth in this chapter exceeds its restriction on more than one (1) occasion, the City shall have the authority to suspend or terminate all water service to such person or entity, in accordance with the following procedures:
1. No water service shall be terminated until the completion of a hearing before the City Manager sitting as the Hearing Officer, assisted by the Utility Manager. The person charged with the violation shall receive at least three (3) days advanced notice of the hearing. Said hearing shall be conducted within ten (10) working days of delivery of the notice of hearing. Such person shall have the right to be heard at such hearing. The above notwithstanding, if the City Manager determines that continued use of the water prior to the hearing date injures the health, safety and welfare of the people of the City, the City Manager or the City Utilities Manager shall have the authority to suspend water service to such person or entity pending the conduct and completion of the hearing. In such case, the hearing shall occur within three (3) days of termination.
 2. At the hearing, City staff shall present evidence of the nature and extent of the violation of the restriction or restrictions; and the person charged with such violation or violations shall have the opportunity to present evidence regarding its water usage, mitigation efforts, and such other matters as the City Manager determines to be relevant.
 3. Based upon the evidence presented, the City Manager shall make findings and a decision regarding the existence and extent of any violation of any of the restrictions imposed above, and any penalty to be imposed for violation of any of the restrictions. Based on the findings made by this chapter, the City Manager shall have the authority to terminate all water service, to suspend or restrict water service for such period or in such amount as the City Manager determines to be warranted, or to waive any suspension or termination of water service.
- D. The findings and decision of the City Manager shall be transmitted in writing to the person or entity charged with the violation within three (3) days following the completion of the hearing.
- E. The written decision of the City Manager shall be final. (Prior code § 32-68)

13.12.070 Enforcement measures for domestic and irrigation use.

The City shall monitor and enforce the restrictions herein, as follows:

- A. The City Utilities Manager shall monitor all residents and water users for compliance;

- B.** Unless otherwise specified, the first violation by any person or entity of any of the provisions of this chapter shall result in the issuance of a written warning. The second offense shall be punishable as an infraction, with a penalty of one hundred dollars (\$100.00). The third and any succeeding violation of any of the provisions of this chapter shall be punishable as a misdemeanor;
- C.** Any continued or new violation by any person or entity of this chapter, after such person or entity has been cited by the City for such violation, shall constitute a separate violation; and
- D.** Citations issued pursuant to this chapter for any violation of this chapter shall be issued to the person or entity in whose name the City water service is provided for such residence, location or use, or the person or entity in whose name the City water meter has been furnished. (Prior code § 32-69)

RESOLUTION NO. 05-98

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN CLEMENTE,
CALIFORNIA, ADOPTING THE URBAN WATER MANAGEMENT PLAN
PURSUANT TO AB 797

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the City of San Clemente is an urban supplier of water providing service to 16,926 customers; and

WHEREAS, the Urban Water Management Plan shall be periodically reviewed at least once every five years, and the City shall make any amendments or changes to its Plan; and

WHEREAS, Urban Water Management Plan must be adopted by December 31, 2005, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS, the City has therefore prepared for public review an Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the City Council on December 6, 2005; and

WHEREAS, the City of San Clemente did prepare and shall file said Plan with the California Department of Water Resources within 30 days of adoption.

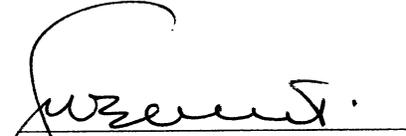
NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SAN CLEMENTE DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The City Council of the City of San Clemente hereby adopts the City of San Clemente Urban Water Management Plan 2005, on file in the City Clerk's office.

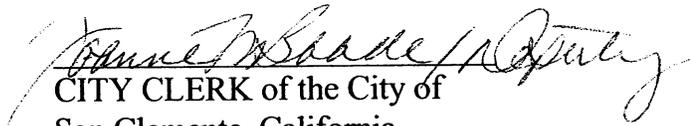
SECTION 2. The City Council of the City of San Clemente hereby directs staff to file the City of San Clemente Urban Water Management Plan 2005 with the California Department of Water Resources by December 31, 2005.

SECTION 3. The City Clerk shall certify to the passage and adoption of this resolution and enter it into the book of original resolutions.

PASSED AND ADOPTED this 6th day of December, 2005.


Mayor of the City of
San Clemente, California

ATTEST:


CITY CLERK of the City of
San Clemente, California

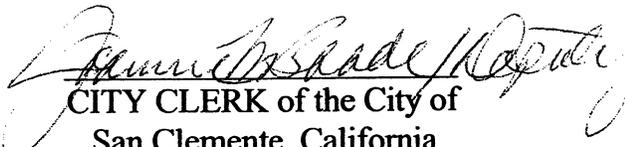
STATE OF CALIFORNIA)
COUNTY OF ORANGE) §
CITY OF SAN CLEMENTE)

I, MYRNA ERWAY, City Clerk of the City of San Clemente, California, do hereby certify that Resolution No. 05-98 was adopted at a regular meeting of the City Council of the City of San Clemente held on the 6th day of ~~December~~ 2005, by the following vote:

AYES: ANDERSON, DAHL, KNOBLOCK, RITSCHER, MAYOR EGGLESTON

NOES: NONE

ABSENT: NONE

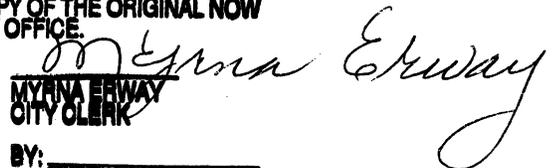

CITY CLERK of the City of
San Clemente, California

Approved as to form:


City Attorney

I, MYRNA ERWAY, CITY CLERK OF THE CITY OF SAN CLEMENTE, STATE OF CALIFORNIA, HEREBY CERTIFY UNDER PENALTY OF PERJURY THE FOREGOING INSTRUMENT TO BE A FULL, TRUE AND CORRECT COPY OF THE ORIGINAL NOW ON FILE IN MY OFFICE.

DATE: 12/12/05


MYRNA ERWAY
CITY CLERK
BY: _____