



TRABUCO CANYON WATER DISTRICT

2010 Urban Water Management Plan

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EXECUTIVE SUMMARY

Background and Purpose

The Trabuco Canyon Water District (District) serves an estimated population of 14,900 in the City of Rancho Santa Margarita and an unincorporated area of Orange County. Specifically, District service area includes the communities of Dove Canyon, Rancho Cielo, Robinson Ranch, Santiago Estates, Trabuco Highlands, Walden, Fieldstone, a section of Portola Hills, and Trabuco Canyon.

The District was organized on February 26, 1962 under Division XII of the California Water Code and is governed by an elected, five-member Board of Directors. Typically, the District supplies approximately 4,000 acre-feet of potable water through imported wholesale water supplies and local groundwater. The District also provides wastewater, reclaimed water, and recycled water service to major communities within the District's service area.

Enacted in 1983, the Urban Water Management Planning Act (Act) requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt an Urban Water Management Plan (UWMP) every five years. The Act requires evaluation of water demand and water supplies to meet current and future growth within the District's service area. Furthermore, the Act requires an evaluation of the reliability of water supply during periods of single dry water years and periods with multiple dry water years. Because the majority of the District's water supply is imported water purchased from the Municipal Water District of Orange County (MWDOC), the water wholesaler in the area, a significant amount of pertinent data and information in this UWMP was drawn from MWDOC's 2010 UWMP. In addition, the District's UWMP also addresses Best Management Practices with methods for conservation, water shortage contingency planning, water quality, and reliability.

For the District, the benefits of updating its UWMP extend beyond legislative compliance. These benefits include the document being used for the following purposes.

- Long-range planning document for water supply and reliability
- Foundation document and source of information for Water Supply Assessments (Water Code 10613)
- Source of data for development of a regional water plan
- Reference source document for the City of Rancho Santa Margarita and County of Orange to update their General Plans
- Planning document for property owners and developers considering new projects
- Key component to assist in preparation of Integrated Regional Water Management Plans

Section Summaries and Key Findings

District staff and its consulting firm of Water Resources Planning prepared the 2010 Urban Water Management Plan during the beginning of 2011 calendar year. A summary of the major sections of the UWMP and the key findings are presented in the sections that follow.

Service Area and Facilities

Trabuco Canyon Water District is located in the southeastern portion of Orange County at the foothills of the Santa Ana Mountains and encompasses approximately 8,200 acres. The terrain within the District can vary from steep hills and canyons to gentle terrain and rolling hills. Elevations within the District range from approximately 900 feet above mean sea level in the lower Aliso Creek area and the southern area of Dove Canyon, to nearly 2,400 feet in the northeasterly portion of the District adjacent to the Cleveland National Forest.

The District currently provides potable water service to an estimated 3,766 households within the District and 532 households within the Irvine Ranch Water District. It also provides sewer service to 3,497 connections. The District's major facilities include the Dimension Water Treatment Plant, Robinson Ranch Wastewater Treatment Plant and Reservoir, Dove Lake, and the Trabuco Creek Wells Facility which includes Rose Canyon Well and Lang Well.

Trabuco Canyon Water District delivers potable water through its pressurized water system consisting of approximately 56 miles of pipelines and nine primary pressure zones. The District's system is interconnected with adjacent agencies including Santa Margarita Water District, Irvine Ranch Water District, and El Toro Water District to provide reliability and redundancy.

Water Use and Water Supply

The District's sources of potable water supply include treated and untreated imported water from Metropolitan Water District of Southern California (MWD). The District has a total purchased annual capacity of 7,240 acre-feet of wholesale water supply consisting of 4,340 acre feet per year (AFY) in the V.P. Baker Aqueduct system and 2,900 AFY in the AMP. The V.P. Baker Aqueduct conveys untreated water to the District's Dimension WTP and the AMP supplies the District with treated water. In addition, the District has an additional 2 cubic feet per second (cfs) of hydraulic capacity (1,450 AFY) in the AMP should additional water become available and needed. In addition to imported water, the District produces recycled water and also has seasonal local groundwater supplies.

The District's groundwater sources include the Rose Canyon and Lang Wells which pump from the Arroyo Trabuco aquifer, part of the San Juan Valley Groundwater Basin, and are treated by the recently completed Trabuco Creek Wells Facility before being pumped into the District's distribution system. Groundwater production varies depending on seasonal rainfall, with marginal water production during dry periods or periods of severe drought.

Although sufficient supplies and capacity are available to meet water demands, other factors that can significantly impact current and future water supplies were considered. These other factors, discussed below, include water service reliability, water quality, water conservation, and water shortage.

Water Service Reliability

Water service reliability, or the ability to reliably supply water to meet the District's demands, was assessed. The assessment consisted of determining the potential impacts of climatic and water quality factors on water supply sources and comparing these with projected water demands. Projected water demands developed by the District through 2035 were based on available data and represent annual average water use. Because the majority of the District's water supply is imported water purchased through MWDOC, the imported water supply values used were obtained from MWDOC. As the wholesale supplier for 30 Orange County cities and water agencies, MWDOC conducted a regional

assessment of the reliability of water supply and its vulnerability to seasonal or climatic factors. MWDOC's 2010 UWMP describes, in detail, the method of analysis and assumptions used in its assessment of the reliability of its water supply to its member agencies. It relied heavily on the MWD 2010 Regional UWMP. MWDOC's assessment compared supplies of the region's groundwater, recycled water, surface water, and imported water to the region's demands based on historical hydrology and each member agency's water use and water sources.

To analyze the reliability of water supply, MWDOC established the hydrologic conditions for a normal water year, single dry water year, and multiple dry water years. To determine each water year type, historical hydrology data for the region dating from 1922 to 2004 was used, as well as retail demands, local supplies, and imported supplies. Based on this, the water year types determined are shown below:

- Normal water year: Average of historical hydrology from 1922 to 2004
- Single dry water year: 1977 hydrology
- Multiple dry water year: 1990 to 1992 hydrology

These data, combined with water demands from MWDOC's member agencies, was used with a water balance computer model to determine water supply reliability values for each member agency, including the District. In determining water service reliability, MWDOC found that in dry years the retail demand usually increases above normal years due to the hot and dry weather. At the same time, local supplies usually decrease because of less precipitation and recharge of aquifers. Therefore in its assessment, MWDOC accounted for a decrease in local supply and an increase in imported water supplies. The increase of imported water during dry water years, compared to normal water years, was projected for a single dry water year and for series of multiple dry water years consisting of three-year periods in consecutive order.

In summary, results of the analysis provided by MWDOC conclude that the region will have sufficient supplies to meet the District's imported water demands under every scenario through 2035. Together with the District's projections for local supply, the reliability of water service is projected to meet the various scenarios evaluated. With respect to water quality and its impact on supply reliability, MWDOC's 2010 UWMP concludes that current management strategies have accounted for all known and foreseeable water quality impacts. In addition, it states that the region does not anticipate that any water quality issues would reduce supply availability. However, unforeseeable water quality issues could potentially alter the region's water supply and adversely impact its service reliability.

Demand Management Measures

Demand Management Measures (DMM) are programs designed to increase conservation, water awareness, and encourage efficient water use. These demand management measures, also known as Best Management Practices (BMPs), include a minimum of 14 types of measures that are monitored to evaluate their effectiveness within the region and District's service area. To meet the requirements of Water Code Section 10631, the Act allows members of the California Urban Water Conservation Council (CUWCC) to submit their annual BMP Activity Reports that include an agency's progress in implementing and monitoring of its BMPs. Since 1991, the District has been a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California, and is therefore a member of the CUWCC. As an active reporting member of the CUWCC, the District began submitting annual reports in 1992. The two most recent annual CUWCC Annual BMP Implementation Reports for 2009 and 2010 are located in the appendices of this UWMP.

As a member agency of MWDOC, the District implements some of MWDOC's water efficiency programs to encourage the practice of wise water usage and the conservation of water supplies. For example, the District entered into a Letter Agreement with MWDOC to participate in a regional South County SmartTimer Rebate Program. Under this program, residential customers and small commercial properties are eligible to receive a rebate when they purchase and install a new, state-of-the-art, weather-based sprinkler timer that has been shown to save 41 gallons per day, per residential installation, and to reduce runoff and pollution by 49 percent. Another program that is available to District customers is the SmartScape program. This is a subset program of the South County Smart Timer Rebate Program. At qualified sites in South Orange County, MWDOC installs a smart timer, repairs irrigation problems, and if enough funds are still available, high water-use turf and plants are replaced with low water-use, California-friendly plants.

Overall, the District is active in submitting BMP activity reports through the CUWCC, promoting conservation, efficient water use, and greater water awareness. Through its continued implementation of BMPs and new programs such as the Conservation Encouragement Rate Program (CERP), the SmartTimer Rebate Program, and SmartScape Program, the District is making progress in implementing the DMMs.

Water Shortage Contingency Plan

During water shortages, the District manages its local and imported water supplies by utilizing various mechanisms to ensure reliability. Water shortages may result from variations in weather and natural and unnatural catastrophes, such as, but not limited to, pipeline failures, transmission facility failures, supply contamination, and earthquakes. In 1992 the District adopted its Water Shortage Contingency Plan (WSCP) in response to California Assembly Bill No. 11. The purpose of the WSCP is to conservatively manage water resources to be able to provide water to the District's customers, on an equitable and business-sound basis, in the event that water supplies to the District are curtailed by as much as 50 percent.

Because the majority of the District's water supply is imported water, the District's water supply will be subject to MWDOC's regional water supply plan, which follows MWD's Water Surplus and Drought Management Plan (WSDM Plan). The WSDM Plan defines five surplus management stages and seven shortage management stages to guide resource management activities. Each year, MWD evaluates the level of supplies available and existing levels of water in storage to determine the management actions that would avoid an extreme shortage to the maximum extent possible, and minimize adverse impact to retail customers should an extreme shortage occur. MWD has also outlined in the WSDM Plan the sequencing of actions that will be taken based on detailed modeling of their existing and expected resources. These actions include, but are not necessarily limited to, surface storage management/withdrawal, groundwater storage/withdrawal, curtailment of groundwater replenishment storage programs, and conservation. MWD has stated that, through effective management of its water supply, it expects to be 100 percent reliable in meeting water demands through the next 25 years.

Furthermore, the District adopted its Water Conservation Ordinance in 2009 in response to Governor Schwarzenegger's declaration of a statewide drought. On January 1, 2009, the District adopted Water Conservation Ordinance Number 2008-18 (Ordinance) with the purpose of establishing a water conservation and supply shortage program to reduce water consumption through conservation, allow for effective water supply planning, ensure reasonable and beneficial use of water, prevent waste of water at all times, and maximize the efficient use of water within the District to avoid and minimize the

effects and hardship of water shortages to the greatest extent possible. Additionally, the Ordinance includes mandatory water use prohibitions, water reduction methods, and penalties for excessive water use.

In summary, the District's Conservation Ordinance together with MWD's WSDM Plan, provide a water shortage contingency plan with mechanisms to ensure supply reliability, provide the District with action stages to meet reductions in water supply, and assess the potential economic impact to the District.

Projects to Improve Water Supply Reliability

The District is committed to supporting programs to maximize existing water sources and minimize the region's dependency on imported water supplies. As a member agency of MWDOC, the District supports and has also directly participated in various programs, studies, and plans led by MWDOC. In its 2010 UWMP, MWDOC includes numerous planned water supply projects, which include the following projects with the District's neighboring water districts.

- Baker Water Treatment Plant
- Irvine Ranch Water District Interconnection Project
- Santa Margarita Water District Upper Chiquita Reservoir Project
- El Toro Water District Recycled Water Distribution Capacity Expansion

The proposed 43.5 cfs Baker WTP will be owned and operated by IRWD with the District purchasing a capacity right to the facility. The Baker WTP will treat raw water conveyed by MWD from either the Colorado River or State Water Project. Local projects applicable to the District, such as increasing recycled water use, additional dry weather runoff capture and reuse, and increasing the efficiency of water treatment operations are in addition to the above programs.

Conclusions

The District's 2010 UWMP analyses indicate that the District's imported water supplies, together with planned recycled water supplies, will be critical for meeting the District's water demands through 2035. The District's local groundwater supplies are expected to continue to be an important source of water for meeting demands while also contributing to the region's water supplies by not increasing the region's dependence on imported water supplies. The District's projected water demands are expected to be reliably met by: reliable imported water from MWDOC, local groundwater supplies, continued optimal use of reclaimed and recycled water for current and future landscape irrigation applications, continued application of BMPs, and implementation of the Conservation Encouragement Rate Program.

In compliance with the California Water Code, the District has encouraged community participation in its urban water management planning efforts. A public hearing was held on June 15, 2011 at the District Main Office. An informational presentation, with draft copies of the UWMP, was offered to the representative homeowners associations within the District. Legal notices of the availability of the draft UWMP and public hearing were posted at the District administrative office and in the local newspaper of general circulation – the Orange County Register - and on the District's internet web page. A copy of the UWMP was provided to the District's water wholesaler, MWDOC, the cities of Rancho Santa Margarita and Lake Forest, and the County of Orange. Finally, copies were also available at the District office for review by the District's customers and the general public.

Notice of Adoption

The District's Board of Directors, at its regularly scheduled June 15, 2011, meeting adopted the 2010 Urban Water Management Plan. Following adoption and in compliance with the California Water Code, the UWMP was submitted to the California Department of Water Resources within 30 days. Copies of the adopted UWMP update were also submitted to MWDOC, the California State Library, the cities of Rancho Santa Margarita and Lake Forest, and the County of Orange. This UWMP includes all information necessary to meet the requirements of the California Water Code Division 6.

SECTION ONE – PLAN PREPARATION

1.1 BACKGROUND

This Urban Water Management Plan (UWMP) was prepared by the Trabuco Canyon Water District (District) in response to the Urban Water Management Planning Act (Act), Water Code Section 10610 through 10657, which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires that urban water suppliers that provide water for municipal purposes to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually, prepare and adopt an UWMP. The Act requires suppliers to describe and evaluate sources of water supply, efficient use of water, demand management measures, implementation strategies and schedules, and other relevant information and programs.

Furthermore, California Water Code 10644(a) requires urban water suppliers to file with the Department of Water Resources (DWR), the California State Library, and any city or county within which the supplier provides water supplies, a copy of its UWMP, no later than 30 days after adoption. Urban water suppliers are required to file an UWMP at least once every five years on or before December 31, in years ending in five and zero. The Water Conservation Bill of 2009 (SBx7-7) provided a six month extension for the 2010 UWMP. Sections of this UWMP that correspond to the Act are summarized in Appendix A in the UWMP Checklist.

This 2010 UWMP provides information on the present and future water resources and demands in the District's service area and provides an assessment of its water resource needs. Specifically, the UWMP provides water supply planning for a 25 year planning period in five year increments. The UWMP identifies water supplies for existing and future demands, quantifies water demands during normal year, single dry year, and multiple dry year scenarios, and identifies supply reliability under the three hydrologic conditions. The District's 2010 UWMP is an update to its 2005 UWMP.

Since its passage in 1983, several amendments have been added to the Act. The most significant change is SBx7-7, enacted in 2009. It stemmed from the Governor's vision to achieve a twenty percent statewide reduction in urban per capita daily water use by December 31, 2020. SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the twenty percent goal by 2020 and an interim ten percent goal by 2015. Each urban retail water supplier must include in its 2010 UWMPs the following information from its target-setting process.

- Baseline daily per capita water use
- 2020 urban water use target
- 2015 interim water use target
- Compliance method being used along with calculation method and support data
- An implementation plan to meet the targets

A summary of the other recent significant changes is provided below.

AB 1376

Assembly Bill 1376 requires water suppliers to provide at least a 60 day notification of the public hearing to adopt an UWMP, to any city or county within which the supplier provides water.

AB 1420

Assembly Bill 1420 requires urban water suppliers to implement water Demand Management Measures (DMM) described in Water Code Section 10631(f) in order to be eligible for any water management grants or loans awarded or administered by DWR, State Water Resources Control Board (SWRCB), or the California Bay-Delta Authority or its successor agency, which are collectively referred to as “Funding Agencies”. The DMM’s correspond to the fourteen Best Management Practices (BMP) listed and described in the California Urban Water Conservation Council Memorandum of Understanding. Determination of DMM compliance is based on an individual water agency’s implementation or participation with a regional group. This Assembly Bill is in effect until July 1, 2016, unless another statute is enacted.

SB 407

Senate Bill 407 requires multi-family and commercial properties to replace non-compliant plumbing fixtures with water conserving fixtures during building improvements or alteration. All single family homes must have non-compliant plumbing fixtures replaced by 2017, and all multi-family and commercial buildings by 2019.

SB 1087

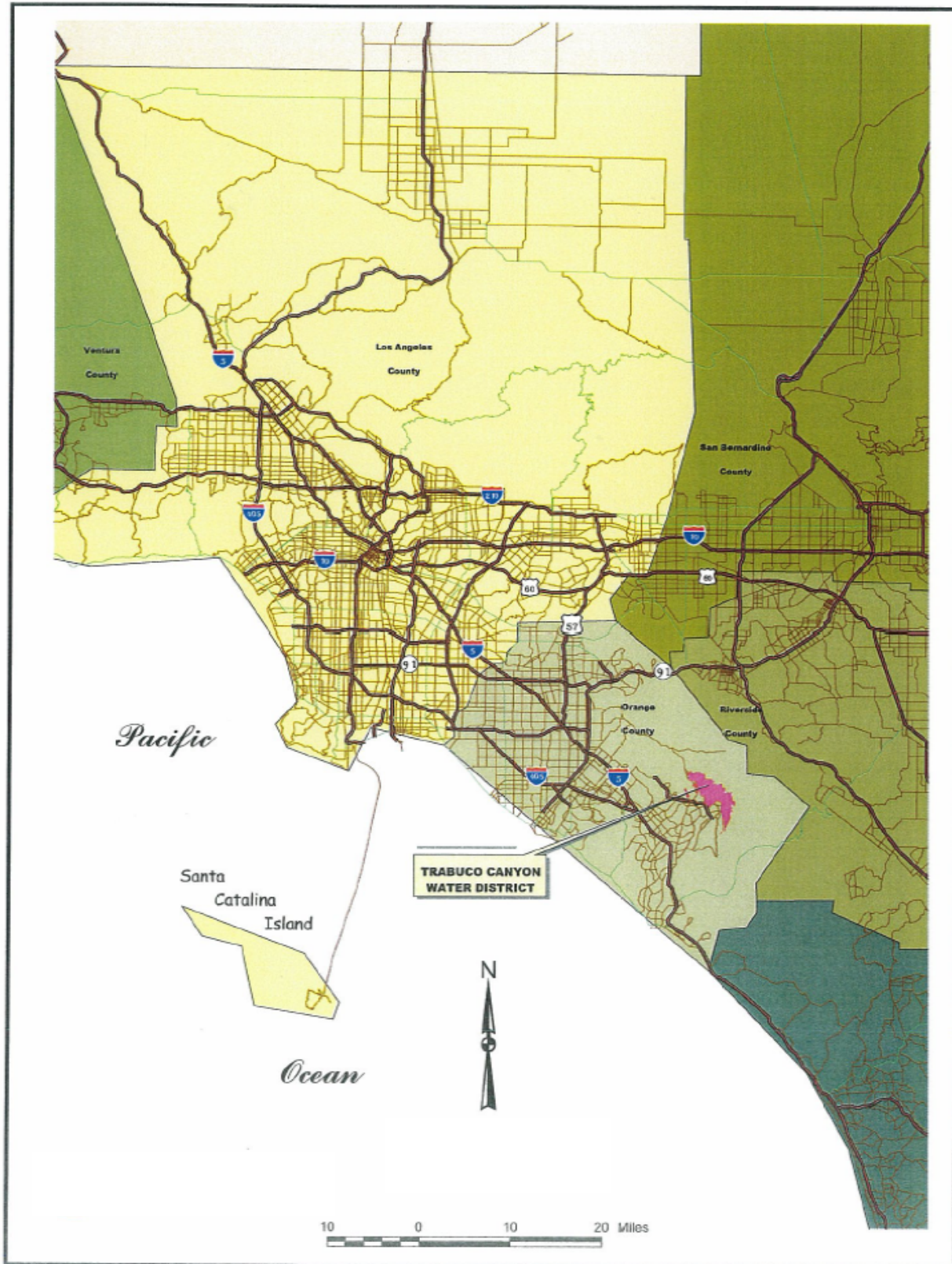
Senate Bill 1087 requires UWMPs to include projected water use for single family and multi-family housing being planned for lower income households. This bill supports the requirement that suppliers grant a priority for the provision of service to housing units affordable to lower income households.

1.1.1 DISTRICT HISTORY

The Trabuco Canyon Water District is a water district organized and operating pursuant to Section 30000, and following, of the Water Code of the State of California. The District was organized on February 26, 1962, under Division XII of the California Water Code. The District is governed by a five-member Board of Directors elected to alternating four year terms at elections held every two years. The District currently employs 22 individuals in the following departments: Administration, Water, Wastewater, and Maintenance.

Shortly after its formation, the District constructed a major transmission line into the central Trabuco Canyon area to provide water service to the few hundred residences along its route and in the canyon area. The western and eastern portions of the District both began urbanizing in the early to mid-1980’s with the development of Robinson Ranch and Portola Hills located in the southern portion of Orange County. Figure 1.1 presents the general location of the District within southern California and Orange County.

Figure 1-1 Vicinity Map



In addition to water service, the District was later enabled to provide wastewater treatment and reclaimed water service. The District constructed sewer collection facilities, and acquired treatment capacity from Santa Margarita Water District (SMWD) for the western portion of the District. The eastern portion of the District is served through District-owned sewer system, wastewater treatment facilities, and recycled water facilities. The District treats the collected wastewater at the Robinson Ranch Wastewater Treatment Plant (RRWWTP), and has the capability to divert or convey wastewater to SMWD for treatment at their Chiquita Wastewater Reclamation Plant. The District reclaims the treated effluent from RRWWTP by pumping treated and stored flows to the reclaimed water customers.

The District currently serves an estimated population of 14,907. The District currently serves drinking water to an estimated 3,766 households within the District and 532 households within the Irvine Ranch Water District (IRWD). It provides sewer service to 3,497 connections within its boundaries plus 233 connections in the SMWD service area. The District provides reclaimed and recycled water service to Dove Canyon golf course, Dove Canyon Master Association, the Trabuco Highlands Community Association, and the Robinson Ranch Homeowners Association.

1.2 COORDINATION

The District is a member of the Municipal Water District of Orange County (MWDOC), the water wholesaler in the area. In preparation of this UWMP, pertinent information regarding regional demands and supply was drawn from MWDOC's 2010 Regional UWMP (RUWMP). The District and MWDOC also reviewed the regional demands and supply information from the RUWMP of the Metropolitan Water District of Southern California (MWD). The District made available copies of its draft UWMP to MWDOC.

During the preparation of the 2010 UWMP, the District prepared the various components of the 2010 UWMP, including the evaluation and descriptions of the various sources of water supply, efficient uses of water, water service reliability, demand management measures, implementation strategy, and schedule. In preparing, developing, and submitting the 2010 UWMP, the District formed a project review team comprised of District staff and the consulting firm of Karen E. Johnson, Water Resources Planning.

Information in this UWMP update was developed from various sources including data from the District administrative services, customer service, water, wastewater, and recycled operations water data. Additionally, the District's Final Water, Wastewater and Reclaimed Water Master Plan (Master Plan), dated December 1999, as well as the 1991 County of Orange Foothill/Trabuco Specific Plan, and County of Orange land use data were utilized as information sources during the preparation of this UWMP update. Furthermore, the District utilized information in the draft 2010 UWMP prepared by MWDOC and MWD.

Copies of the Draft UWMP were made available to the cities of Rancho Santa Margarita (City of RSM) and Lake Forest. The City of RSM covers the eastern portion of the District including the communities of Robinson Ranch, Trabuco Highlands, Dove Canyon, Rancho Cielo, Fieldstone, and Walden. Furthermore, the District's Dimension Water Treatment Facility is located outside of District boundaries in the City of Lake Forest. The remainder of the District is within a section of the City of Lake Forest (Portola Hills) and unincorporated Orange County. A copy of the Draft UWMP was made available to the County of Orange.

As demonstrated in Table 1, the District has notified the aforementioned agencies of the preparation of the UWMP and solicitation of comments at least 60 days prior to the UWMP public hearing. The public hearing and adoption was held at the regular Board of Director's meeting on June 15, 2011.

District staff utilized the DWR *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (March 2011) in order to develop this UWMP. An optional DWR checklist is provided in Appendix A to support DWR in its review of this UWMP. Appendix B provides a list of references utilized in the preparation of this report.

Table 1							
Coordination with Appropriate Agencies							
Coordinating Agencies	Participated in developing the Plan	Commented on the draft	Attended public meetings	Contacted for assistance	Sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
Metropolitan Water District	X						
MWDOC	X			X	X		
County of Orange				X	X	X	
City of Rancho Santa Margarita					X	X	
City of Lake Forest					X	X	

1.3 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

The Trabuco Canyon Water District has encouraged community participation in its urban water management development efforts since the first plan was prepared in 1985. Notice of the draft UWMP preparation and public meeting was posted on the District’s web page on the Internet at the end of May 2011. Legal public notices were published in a local newspaper of general circulation (Orange County Register) and posted at the District’s administrative office. A copy of the draft plan was submitted to the agencies listed in Table 1 for review and comment. In addition, copies were also available for review at the District office.

The District’s Board of Directors, at its regularly scheduled June 15, 2011 meeting, adopted the updated UWMP. Following adoption, the UWMP was submitted to DWR within 30 days of Board approval. Copies of the adopted UWMP were also submitted to MWDOC, the California State Library, the cities of Rancho Santa Margarita and Lake Forest, and the County of Orange. A copy of the resolution adopting this UWMP by the Board of Directors at its June 15, 2011 Board meeting can be found in Appendix C. This plan includes all information necessary to meet the requirements of the Act and its amendments.

As required by *California Water Code* Section 10631(k), MWDOC provided its member agencies information that quantified water availability to meet their projected demands over the next 25 years, in five-year increments. Based on the projections of retail demand and local supply development provided by MWDOC’s member agencies and the imported supply availability described in MWD’s 2010 RUWMP, MWDOC provided data specific to each agency to be used by that agency to update its own UWMP.

SECTION 2 – SYSTEM DESCRIPTION

2.1 SERVICE AREA PHYSICAL DESCRIPTION

Trabuco Canyon Water District is located in the southeastern portion of Orange County at the foothills of the Santa Ana Mountains and encompasses approximately 8,200 acres. Figure 1.1 shows the general location. Prior to 2000, the District was entirely within the unincorporated area of Orange County. In 2000, the City of Rancho Santa Margarita was incorporated and now covers the eastern portion of the District. The eastern portion of the District is accessed via Santa Margarita Parkway or Antonio Parkway and Plano Trabuco Road with the western portion of the District being accessed via El Toro Road or Santiago Canyon Road. Live Oak Canyon Road/Trabuco Canyon Road is the main artery through the central portion of the District between El Toro Road and Plano Trabuco Road.

The terrain is generally steep hills and canyons throughout the central area of the District. The east and west sides consist of more gentle terrain made up primarily of rolling hills. Elevations within the District range from approximately 985 feet above mean sea level in the lower Aliso Creek area and the southern area of Dove Canyon, to nearly 2,400 feet in the northeasterly portion of the District adjacent to the Cleveland National Forest.

As discussed later in this report, the District imports both raw and treated surface water to its service area which is augmented with groundwater from the Arroyo Trabuco Creek, part of the San Juan Valley Groundwater Basin, and non-potable recycled water from the RRWWTP. To treat the imported surface water, the District owns and operates the Dimension Water Treatment Plant (WTP). To treat the groundwater supply, the District recently constructed the Trabuco Creek Wells Facility which houses both the Rose Canyon Well and Lang Well as well as the treatment facilities. An additional privately owned well, the Upper Schwendemann Well has been leased in the past but is not currently being utilized.

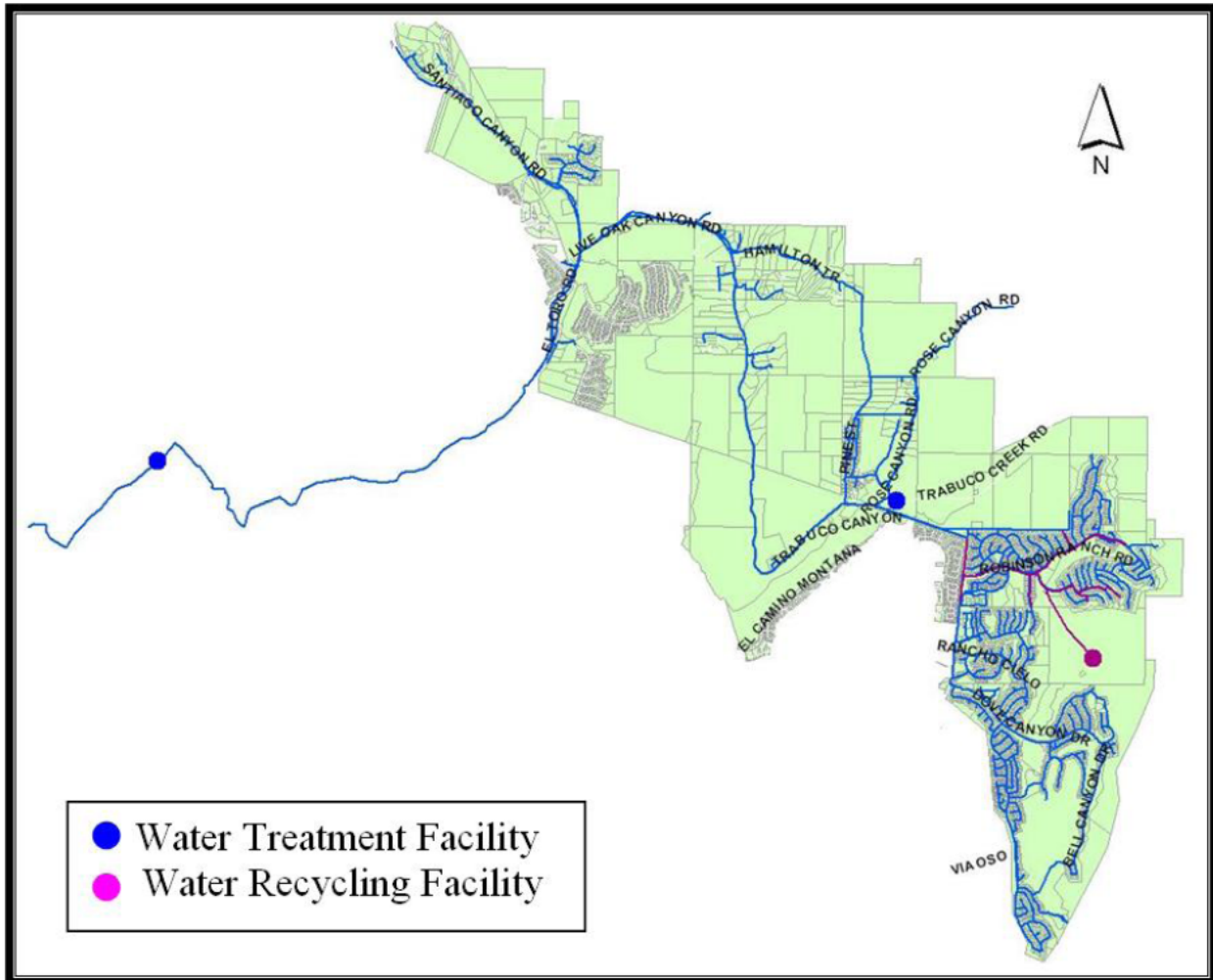
To distribute the treated water throughout the distribution system, the District has nine pump stations, six treated water storage reservoirs, and approximately 60 miles of pipelines. The primary District water supply facilities are presented on Figure 2.1. The location of facilities has been generalized for security purposes.

District wastewater facilities include RRWWTP, a 0.85 mgd water reclamation treatment facility, eight sewer lift stations and approximately 47 miles of sewers and interceptors. Reclaimed water from the RRWWTP is stored at the RRWWTP Reclaimed Water Reservoir. The RRWWTP Reclaimed Water Reservoir has an approximate storage capacity of 130 acre-feet. The District's recycled water system is supplied with reclaimed water from the RRWWTP and with urban runoff captured and stored in Dove Lake. Dove Lake captures local runoff from the surrounding communities of Dove Canyon, Robinson Ranch, and Trabuco Highlands. In addition the District's Dry Season Water Recovery Project captures urban runoff and stores it in Dove Lake for use in augmenting the District's non-potable irrigation system.

2.2 SERVICE AREA CHARACTERISTICS

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

Figure 2.1 District Service Area



2.2.1 SERVICE AREA POPULATION

Population is a key indicator of growth, both regionally and locally. Orange County has a population of more than 3 million people living in a 798 square-mile area. According to the Southern California Association of Governments (SCAG) Growth Forecast Report, Orange County is projected to grow by more than 500,000 people by 2030, bringing the total population in Orange County to 3.5 million.

The population of the District's service area has been estimated for MWDOC by the California State University Fullerton (CSUF) Center for Demographic Research (CDR) using the California State Department of Finance population data. It is important to note that this information is derived from 2000 Census data and not the 2010 Census information, as this data will not be available until the end of the 2011 calendar year. Based on the 2000 Census projections, the District currently serves an estimated population of 14,907, which represents an 8.3 percent increase over that reported in the 2005 Plan Update.

The projected population can be corroborated with the following sources the District has on file.

- Resources & Development Management Department of the County of Orange, County-approved Tentative Tract Maps and Tract Maps
- Developers owning property within the District's boundaries
- Sub-Area Master Plans
- County of Orange Foothill/Trabuco Specific Plan
- U. S. Bureau of Census, Census 2000 data

The Resources & Development Management Department (RDMD) requires that the County land use decisions in the area conform to the County's General Plan where applicable. The County's projections are based on the maximum number of housing units per acre that could be developed in the unincorporated areas of the District. Based on this information, the County currently projects that the total additional housing units could be 2,086 by 2030 which is higher than the District's projection of 1,309 housing units. The most current data available from developers indicate an even fewer number of dwelling units. The District has obtained these current values from developers and incorporated them into Sub-Area Master Plans.

The District requires that developers building eight or more dwelling units to contract through the District to provide a Sub-Area Master Plan (SAMP). For developments below eight dwelling units, the District conducts an individual water analysis for each development. Three large developments for which the District has previously approved SAMPs include: Saddleback Meadows, Saddle Creek/Crest, and Robinson Ridge. These three developments remain in the planning phase and are designed to each build fewer than 250 homes. Figure 2.2 presents the County of Orange land use designations from the District's Water, Wastewater, and Reclaimed Water Master Plan (Master Plan) (see Appendix B for references).

Future developments consist of single family residences yielding low to medium housing density. Household sizes within the District range from 2.9 to 3.5 per household as calculated by the U. S. Bureau of Census, Census 2000 data. CDR staff used the census data to project an increase in housing units in five-year increments with the applicable household sizes for each development. The results are presented in Table 2.

Table 2							
Population — Current and Projected							
	2010	2015	2020	2025	2030	2035	Data source
Service Area Population	14,907	15,483	16,059	16,636	17,212	17,788	MWDOC, CDR, CSUF

2.2.2 CLIMATE

The District service area has a Mediterranean climate which is marked with semi-arid environment characteristics: hot, dry summers, fairly mild winters and moderate rainfall. This type of climate is consistent with coastal Southern California. On average, daily temperatures can range from 58° F in the winter months of December and January to 74° F in August, in a typical year. This mild climate pattern can be typically interrupted by periods of extremely hot temperatures in the summer months, very wet winter storms, and increased warm or hot Santa Ana wind conditions in the Canyon areas during the year.

Historically, the region has been subject to wide variations in annual rainfall from year to year. The annual average precipitation is typically about 14 inches of rainfall. The area has also experienced occasional wildfires in the native chaparral and oak areas, as well as heavy rainfall, and flooding in lower elevations.

SECTION 3 – SYSTEM DEMANDS

3.1 BASELINES AND TARGETS

Base period ranges used to establish the baseline per capita water demands and water use targets for 2015 and 2020, in conformance with SBx7-7, are presented here. The past, current, and projected water consumption by type of use is discussed in this section, along with projected water demands for planned low-income households and a plan for achieving the water use targets.

3.1.1 ESTABLISHING BASELINES

Table 3 presents the base period ranges for the District’s fifteen year (1990 through 2005) and five year (2003 through 2008) periods. A 15 year baseline was used because the District’s 2008 recycled water usage was greater than 10 percent of its 2008 deliveries. The information presented was obtained from MWDOC.

Table 3 (DWR Table 13)			
Base Period Ranges			
Base	Parameter	Value	Units
15-year base period	2008 Total water deliveries	3,151	Acre-feet
	2008 Total volume of delivered recycled water	981	Acre-feet
	2008 Recycled water as a percent of total deliveries	31.1%	Percent
	Number of years in base period	15	Fiscal Years
	Year beginning base period range	07/01/90	
	Year ending base period range	06/30/05	
5-year base period	Number of years in base period	5	Fiscal Years
	Date beginning base period range	07/01/03	
	Date ending base period range	06/30/08	

Table 4 lists the District population served, water supplied in gallons per day (gpd), and per capita consumption for each year within the fifteen year baseline range. The baseline daily per capita consumption for the fifteen year period was 260 gallons per capita per day (gpcd). The daily system gross water use does not include agricultural and recycled water demands.

Table 5 lists the population served, water supplied, and per capita consumption for years within a five year range. The daily system gross water use does not include agricultural and recycled water demands. The five year baseline is needed to determine whether the 2020 target meets the legislation’s minimum water use reduction requirements of at least a five percent reduction per capita for this five year period. This is discussed in the next subsection under target establishment. The baseline daily per capita consumption for the five year period was 190 gpcd.

Table 4 (DWR Table 14)				
Base Daily Per Capita Water Use — 15 Year Range				
Base Period Year		Distribution System Population	Daily System Gross Water Use (gpd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	1991	6,376	2,857,401	448
Year 2	1992	7,354	2,789,285	379
Year 3	1993	8,253	2,688,405	326
Year 4	1994	8,881	2,974,886	335
Year 5	1995	9,412	3,212,891	341
Year 6	1996	10,102	2,872,845	284
Year 7	1997	11,035	2,655,373	241
Year 8	1998	12,051	2,211,948	184
Year 9	1999	13,065	2,493,787	191
Year 10	2000	14,450	2,904,448	201
Year 11	2001	14,547	2,778,929	191
Year 12	2002	14,585	3,223,961	221
Year 13	2003	14,659	2,704,474	184
Year 14	2004	14,686	2,960,513	202
Year 15	2005	14,706	2,479,414	169
Base Daily Per Capita Water Use				260

Table 5 (DWR Table 15)				
Base Daily Per Capita Water Use — 5 Year Range				
Base period year		Distribution System Population	Daily System Gross Water Use (gpd)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2004	14,686	2,960,513	202
Year 2	2005	14,706	2,479,414	169
Year 3	2006	14,698	2,798,212	190
Year 4	2007	14,727	2,964,084	201
Year 5	2008	14,779	2,812,764	190
Base Daily Per Capita Water Use				190.4

3.1.2 TARGET ESTABLISHMENT

SBx7-7 Requirements

SBx7-7, the Water Conservation Bill of 2009, was signed into law on February 3, 2010, as part of a comprehensive water legislation package. As previously discussed, the bill sets a goal of achieving a 20 percent statewide reduction in urban per capita water use. It directs urban retail water suppliers to develop targets to meet a 20 percent reduction in per capita water use by 2020, and an interim 10 percent reduction by 2015. Water suppliers receive partial credit for past efforts in conservation and

deductions for recycled water. A retail agency that does not comply with the requirements of SBx7-7 will not be eligible for a water grant or loan from the state.

The targets can be established for a regional alliance, of which the District is a participant. However, if the regional alliance does not meet its targets, the individual agency targets must be met. This section includes a description of the District's individual targets as well as MWDOC's formation of a Regional Alliance and its targets.

DWR provided four different methods to establish water conservation targets.

- **Method 1 – Baseline Reduction Method.** The 2020 water conservation target of this method is defined as a 20 percent reduction of average per capita demand during the ten year baseline period described above. This equates to a 2020 target of 208 gpcd for the District, or 80 percent of the baseline of 260 gpcd.
- **Method 2 – Efficiency Standard Method.** This target is based on calculating efficiency standards for indoor use separately from outdoor use for residential sectors and an overall reduction of 10 percent for commercial, industrial, and institutional (CII) sectors. The aggregated total of the efficiency standards in each area is then used to create a conservation target. Detailed landscape data by parcel is needed for this method.
- **Method 3 – Hydrologic Region Method.** This method uses the ten regional urban water use targets for the State. A static water use conservation target for both 2015 and 2020 is assigned for Region 4: South Coast. The South Coast region target is 149 gpcd, reflecting a 20 percent reduction. The Method 3 target is based on the District reaching 95 percent of the South Coast region target, or 142 gpcd.
- **Method 4 – BMP Based Method.** This method uses specific data on previous water supplier BMP savings to establish a conservation target for 2020. Depending on how aggressively the water supplier has pursued water reduction and conservation in the past, a new conservation target for 2020 is assigned. This option is provisional and will be updated by DWR by 2014.

Individual District SBx7-7 Targets

Methodology 1 was selected as the most appropriate methodology for the District to establish water use reduction targets to meet the requirements set forth in SBx7-7. Methodology 1 requires a straightforward technical analysis of reducing the baseline per capita consumption by the targets. The District baseline per capita consumption identified in Table 4 is 260 gpcd. A 10 percent reduction by 2015 is 234 gpcd. A 20 percent reduction by 2020 is 208 gpcd.

However, DWR requires that the target be at least as low as 95 percent of the five year baseline, as presented in Table 5. This five year baseline is 190.4 gpcd, 95 percent of this number is 180.9 gpcd. Therefore, the 2020 target must be as low as 180.9 or 181 gpcd. The 2015 target is 50 percent of the 2020 target or 186 gpcd.

The District is planning to use 1,035 acre-feet per year (AFY) of recycled water directly by 2015 and 1,035 AFY by 2020. Use of recycled water to meet demands will contribute to the District meeting its targets.

Orange County 20x2020 Regional Alliance

MWDOC, in collaboration with all of its retail agencies as well as the cities of Anaheim, Fullerton, and Santa Ana, created the Orange County 20x2020 Regional Alliance (Regional Alliance) in an effort to create flexibility in meeting the per capita water use reduction targets required under SBx7-7. This Regional Alliance will allow all of Orange County to benefit from regional efforts to conserve and reduce daily per capita water use. These efforts include the Groundwater Replenishment System (GWRS), recycled water projects, and water use efficiency programs. The members of the Orange County 20x2020 Regional Alliance are shown below.

Orange County 20x2020 Regional Alliance Members	
Anaheim	Moulton Niguel Water District
Brea	Newport Beach
Buena Park	Orange
East Orange County Water District	San Clemente
El Toro WD	San Juan Capistrano
Fountain Valley	Santa Ana
Fullerton	Santa Margarita Water District
Garden Grove	Seal Beach
Golden State Water Company	Serrano WD
Huntington Beach	South Coast Water District
Irvine Ranch Water District	Trabuco Canyon Water District
La Habra	Tustin
La Palma	Westminster
Laguna Beach County Water District	Yorba Linda Water District
Mesa Consolidated Water District	

If the Regional Alliance meets its water use target on a regional basis, all agencies in the alliance are deemed compliant. If the Regional Alliance fails to meet its water use target, each individual supplier will have an opportunity to meet their water use targets individually. As the reporting agency for the Orange County 20x2020 Regional Alliance, MWDOC documented the calculations for the regional urban water use reduction targets. In the future, MWDOC will provide annual monitoring and reporting for the region on progress toward meeting the regional per capita water use reduction targets.

As shown in the table below, MWDOC calculated the regional target for the Regional Alliance as 157 gpcd at 2020 and 174 gpcd at 2015. This estimate was provided to the District in draft form.

Calculation of Water Use Targets for Regional Alliance					
Orange County 20x2020 Regional Alliance	(1) 2010 Population	(2) 2015 Target (GPCD)	(1) x (2) = (3) Weighted Total 2015 (GPD)	(4) 2020 Target (GPCD)	(1) x (4) = (5) Weighted Total 2020 (GPD)
Regional Alliance Total	3,139,017	174	546,585,513	157	491,343,822

Note: Regional Alliance estimates based on MWDOC's Draft 2010 RUWMP.

These targets are subject to revisions, as retail water suppliers have an option to update their target in their 2015 UWMPs. Additionally, the population weightings used to calculate these targets will be revised in 2015 and 2020 based on the most recent compliance year population data.

3.2 HISTORICAL AND PROJECTED WATER DEMANDS

Tables 6 through 10 demonstrate the past, current and projected water use by customer type, including reclaimed/recycled water uses and unaccounted for water/system losses. Service connections are actual meters billed by the District; the 31 multi-family residential connections serve 184 dwelling units as there is only one meter per multi-unit building. Future growth in the District is largely planned according to the District's Master Plan and SAMPs, and the Foothill/Trabuco Specific Plan.

Past and current water use is based on District monthly billing records for the years 2005 through 2010. Projected water use for years 2015 through 2035 is based on population growth and planned developments, as described in each section below. Future growth is consistent with the general plans of both the County and City of RSM. Projected demands include recycled water use and do not include system losses.

Residential Sector

In the District's service area, single family residential units average 3.3 persons per household and multi-family residential units average 2.6 per household. For 2010, using the total single family residential connections of 3,778, results in a per single family unit consumption of 133 gpd, or about 0.15 AFY.

Commercial Sector

The District has only a minimal amount of commercial uses including two neighborhood commercial centers with grocery markets, drug stores, banks, fast food establishments, restaurants, gasoline station, and related service commercial uses. Additionally, there is an office complex and a few other restaurants within the District.

Industrial Sector

The District has no industrial use in its service area.

Institutional Sector

The institutional uses scattered throughout the District include two schools, a few churches and a monastery, and a County youth boarding facility (Joplin Youth Facility). No significant growth in this sector is planned.

Landscape/Recreational Sector

This sector consists of homeowner association landscaped slopes, parks and greenbelts, a golf course, and a regional park as well as other miscellaneous non-agricultural irrigation connections. The District currently has 22 recycled water metered connections with four major irrigation users. These four major irrigation users are located in the eastern portion of the District and include: Dove Canyon Golf Course, Dove Canyon Master Association, Robinson Ranch Homeowners Association, and Trabuco Highlands Community Association.

Agricultural Sector

This sector includes two major wholesale nurseries located within the District, T Y and Sakaida, which make up the majority of this water use. These nurseries are designated for residential development in the future so this category may decrease when these developments are phased in. The extent to which the developments will be phased in is uncertain, therefore the District will continue to project agricultural water usage through 2035. These areas are irrigated from private wells and/or from domestic supplies of the District.

Table 6 presents the District's actual water deliveries for 2005.

Table 6 (DWR Table 3)					
Water Deliveries — Actual 2005 (AF)					
	2005				
	Metered		Not metered		Total
Water use sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single Family	3,773	2,121	0	0	2,121
Multi-family	31	29	0	0	29
Commercial	164	679	0	0	679
Industrial	0	0	0	0	0
Institutional/Governmental	7	26	0	0	26
Landscape	22	758	0	0	758
Agriculture	6	209	0	0	209
Total	4,003	3,822	0	0	3,822

Table 7 presents the District’s actual water deliveries for 2010.

Table 7 (DWR Table 4)					
Water Deliveries — Actual 2010 (AF)					
	2010				
	Metered		Not metered		Total
Water Use Sectors	# of Accounts	Volume	# of Accounts	Volume	Volume
Single family	3,778	1,855	0	0	1,855
Multi-family	31	30	0	0	30
Commercial	96	135	0	0	135
Industrial	0	0	0	0	0
Institutional/Governmental	7	26	0	0	26
Landscape	112	1,232	0	0	1,232
Agriculture	3	174	0	0	174
Total	4,027	3,452	0	0	3,452

Table 8 presents the District’s projected water deliveries for 2015.

Table 8 (DWR Table 5)					
Water Deliveries — Projected 2015 (AF)					
	2015¹				
	Metered		Not metered		Total
Water Use Sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single Family	4,723	2,390	0	0	2,390
Multi-family	31	30	0	0	30
Commercial	96	144	0	0	144
Industrial	0	0	0	0	0
Institutional/Governmental	7	26	0	0	26
Landscape	178	1,665	0	0	1,665
Agriculture	3	140	0	0	140
Total	5,038	4,395	0	0	4,395

¹Deliveries reflect 10 percent target reductions.

Table 9 demonstrates the District’s projected water deliveries for 2020.

Table 9 (DWR Table 6)					
Water Deliveries — Projected 2020 (AF)					
	2020¹				
	Metered		Not metered		Total
Water Use Sectors	# of accounts	Volume	# of accounts	Volume	Volume
Single Family	4,897	2,359	0	0	2,359
Multi-family	31	30	0	0	30
Commercial	96	144	0	0	144
Industrial	0	0	0	0	0
Institutional/Governmental	7	26	0	0	26
Landscape	198	1,730	0	0	1,730
Agriculture	3	140	0	0	140
Total	5,232	4,429	0	0	4,429

¹Deliveries reflect 20 percent target reductions.

Table 10 presents the District’s projected water deliveries for years 2025, 2030, and 2035.

Table 10 (DWR Table 7)						
Water Deliveries — Projected 2025, 2030, and 2035 (AF)						
Water Use Sectors	2025 ¹		2030 ¹		2035 ¹	
	Metered		Metered		Metered	
	# of accounts	Volume	# of accounts	Volume	# of accounts	Volume
Single Family	5,042	2,405	5,110	1,944	5,115	2,554
Multi-family	31	30	31	30	31	30
Commercial	96	144	96	144	96	144
Industrial	0	0	0	0	0	0
Institutional/Governmental	7	26	7	26	7	26
Landscape	198	1,805	203	1,885	203	1,885
Agriculture	3	140	3	140	3	140
Total	7,583	4,550	7,480	4,667	7,490	4,779

¹Deliveries reflect 20 percent target reductions.

3.2.1 LOWER INCOME DEMAND PROJECTIONS

SB 1087 requires water providers to grant priority service hook-ups to lower income housing developments. The UWMP Act requires documentation of future water demands associated with planned new lower income housing by the local land use planning jurisdiction. The City of SM and County of Orange have Housing Elements of their General Plans indicating the need for new construction of lower income units, however, they are planned to be provided within the District’s service area. This is presented in Table 11.

Table 11 (DWR Table 8)					
Lower Income Projected Water Demands					
Low Income Water Demands	2015	2020	2025	2030	2035
Single Family Residential	0	0	0	0	0
Multi-family Residential	0	0	0	0	0
Total	0	0	0	0	0

3.2.2 SALES TO OTHER AGENCIES

In past years, there have been instances when the District sold water to neighboring agencies. The District has not had an opportunity to do so since 2005. The District is currently evaluating opportunities for both domestic and recycled water; however, at this time there is no definite known amount to transfer or exchange. This is presented in Table 12.

Table 12 (DWR Table 9)							
Sales to Other Water Agencies							
Water Distributed	2005	2010	2015	2020	2025	2030	2035
None	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

3.2.3 OTHER WATER USES AND LOSSES

Recycled water use was included in the actual and projected water delivery values presented in Tables 6 through 10. Recycled water is provided to accounts classified by the District as landscape use which is metered and read routinely on a monthly basis. Unaccounted for system losses were based on the District's historical data; losses were estimated to average five percent annually.

Table 13 (DWR Table 10)							
Additional Water Uses and Losses (AF)							
Water use	2005	2010	2015	2020	2025	2030	2035
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Raw water	0	0	0	0	0	0	0
Recycled water ¹	0	0	0	0	0	0	0
System losses ²	191	173	220	221	228	233	239
Total	191	173	220	221	228	233	239

¹ Recycled water was accounted for within the sector demands in Tables 6 through 10.

² System losses reflect an average of 5 percent.

3.2.4 TOTAL WATER USE

Table 14 presents the District's total water use based on the compilation of data from previous tables.

Table 14 (DWR Table 11)							
Total Water Use (AF)							
Water Use	2005	2010	2015	2020	2025	2030	2035
Total Water Deliveries (from Tables 6 to 10)	3,822	3,452	4,395	4,429	4,550	4,667	4,779
Sales to Other Water Agencies (from Table 12)	0	0	0	0	0	0	0
Additional Water Uses and Losses (from Table 13)	191	173	220	221	228	233	239
Total	4,013	3,625	4,615	4,650	4,778	4,900	5,018

Table 15 presents projected water demands for years 2010 through 2035 previously provided to MWDOC.

Table 15 (DWR Table 12)							
TCWD Demand Projections Provided to MWDOC (AF)							
Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035
MWDOC	¹	5,700	6,030	6,270	6,490	6,638	6,638

¹ MWDOC's contracted volume with MWD is for the total of all of its member agencies.

3.3 WATER USE REDUCTION IMPLEMENTATION PLAN

Retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements (SBx7-7) to reduce demands to the target amounts. The District will meet the SBx7-7 2015 target of 186 gpcd and 2020 target of 181 gpcd (total of 9 gpcd to be reduced) through the following activities.

- Use of additional recycled water
- Passive and active conservation activities
- Water conservation program permanent restrictions

3.3.1 USE OF RECYCLED WATER

Recycled water will continue to be used and the system will be expanded over time through the continued conversion of landscape irrigation systems from potable to recycled water and inclusion of recycled water in new developments where available (see Section 4). Total District recycled water utilization by 2020 is projected to be 1,035 AFY, an increase of 284 AFY above 2010 levels. This 284 acre-feet per year of additional recycled water use equates to 16 gpcd.

3.3.2 PASSIVE AND ACTIVE CONSERVATION ACTIVITIES

Conservation activities include the demand management measures (see Section 6) that the District implements as a signatory member of the California Urban Water Conservation Council (CUWCC).

3.3.3 WATER CONSERVATION PROGRAM PERMANENT RESTRICTIONS

Conservation activities include the provisions of the Water Conservation Ordinance (Ordinance No. 2008-18), adopted in January 2009 (see Appendix E and Section 5.3). Permanent mandatory water use efficiency measures identified in this ordinance include the following, all of which are already contributing to reduced water consumption in the District:

- **Limits on Watering Hours**
Watering or irrigating of landscape with potable water is prohibited between the hours of 9:00 a.m. and 6:00 p.m.
- **Limit on Water Duration**
Watering or irrigating of landscape with potable water that is not continuously attended, is limited to no more than ten minutes per station, per day.
- **No Watering While Raining**
Watering or irrigating while raining is expressly prohibited.
- **No Excessive Water Flow or Runoff**
Watering or irrigation of any landscaped area in a manner that allows excessive flow onto an adjacent hard surface is expressly prohibited.

- **No Washing Down Hard or Paved Surfaces**
Prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of hand-held bucket or hose equipped with an automatic shut off nozzle.

- **Limits on Washing Vehicles**
Using water to wash or clean a vehicle is prohibited except by use of hand-held bucket or hose equipped with an automatic shutoff nozzle.

- **Swimming Pools and Spas**
No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with public health regulations, or upon written recommendation of a pool maintenance repair professional.

- **No Indiscriminate Use**
No person shall cause or permit the indiscriminate running of water not otherwise prohibited above which is wasteful and without reasonable purpose.

- **Obligation to Fix Leaks or Malfunctions**
Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected is prohibited. If unattended malfunctions are observed, the District may turn off the irrigation to the affected area until such time the property owner can respond to correct the malfunction.

- **Water Fountains and/or Decorative Water Features**
Must have a re-circulation water system.

- **Washing of Equipment and Machinery**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirement with City or County may apply.

- **Cleaning of Structures**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirements with City or County may apply.

- **Drinking Water Served Upon Request in Restaurants**
Restaurants are only to serve and/or refill water upon request from patrons.

These actions will allow for effective water use reduction whereby the District will be able to meet its individual agency SBx7-7 target. This implementation plan was presented at the District's UWMP public hearing on June 15, 2011. Community input was solicited. No economic impacts are anticipated to result from the implementation plan.

SECTION 4 – SYSTEM SUPPLIES

Trabuco Canyon Water District has a variety of water supply sources.

- Imported Purchases
- Groundwater
- Recycled Urban Runoff
- Recycled Water

Approximately 70 percent of the District’s supply is currently purchased from MWD through MWDOC. Table 16 presents the availability of District water supplies. Each of these supplies are discussed in more detail in this section.

Table 16							
Water Supply Availability — Current and Projected (AF)							
Water Supply Sources		2010	2015	2020	2025	2030	2035
Water purchased from:	Wholesaler supplied volume (yes/no)						
MWDOC	Yes	2,350	3,600	3,600	3,600	3,600	3,600
Supplier-produced Groundwater		318	279	279	279	279	279
Supplier-produced Surface Water (Recycled Urban Runoff)		100	120	150	150	150	150
Transfers In		0	0	0	0	0	0
Exchanges In		0	0	0	0	0	0
Recycled Water		751	1,035	1,035	1,035	1,035	1,035
Desalinated Water		0	0	0	0	0	0
Total		3,519	5,034	5,064	5,064	5,064	5,064

4.1 IMPORTED PURCHASES

MWD imports supplies to the region for MWDOC to wholesale to the District. During the previous five years, the District purchased an annual average of 2,907 acre-feet of imported water. Imported quantities presented in Table 16 represent the maximum annual amount of water purchased by the District from MWDOC in the past five years, which was 3,600 (rounded from 3,599) acre-feet in 2006-07. MWD has indicated that it ensures a highly reliable supply of water – over 100 percent of average annual demands – to its member agencies during average, dry year, and multiple dry years.

4.1.1 MWD WHOLESALE SUPPLIES

MWD wholesales imported water supplies to member cities and water districts in six Southern California counties. MWD has provided between 45 and 60 percent of the municipal, industrial, and agricultural water used in its nearly 5,200 square-mile service area. The remaining supply comes from local wells, local surface water, recycled water supplies, and from the City of Los Angeles’s aqueduct in the eastern Sierra Nevada.

Historically, MWD has been responsible for importing water into the region through its operation of the Colorado River Aqueduct and its contract with the State of California for State Water Project (SWP) supplies. Over the past decade, supplies from the Colorado River have averaged 1.2 million acre-feet. Supplies from the SWP over the same period have averaged 700,000 AFY. The future reliability of these supplies is increasingly uncertain; however, MWD has increased its ability to supply water, particularly in dry years. MWD has increased supplies received from the SWP by developing flexible Central Valley/SWP storage and transfer programs to deliver additional dry year supplies that can be conveyed through the Delta during dry years and during times of Delta regulatory restrictions. The adopted MWD 2010 RUWMP provides detailed documentation of current and projected MWD supplies and deliveries to ensure supply reliability (MWD, 2010).

4.1.2 MWDOC'S ROLE

MWDOC is a regional water wholesaler and resource planning agency, managing all of Orange County's imported water supply to 28 water purveyors, with the exception of water imported to the cities of Anaheim, Fullerton, and Santa Ana. These MWDOC member agencies, comprised of cities and water districts, provide water to approximately 2.3 million customers in a 600 square-mile service area. MWDOC is MWD's second largest member agency.

To aid in planning future water needs, MWDOC works with its member agencies each year to develop a forecast of future water demand. The result of this coordination effort allows MWDOC to forecast the imported demand by subtracting total demand from available local supplies. MWDOC then advises MWD annually on how much water MWDOC anticipates to purchase during the next five years (MWDOC, 2010).

4.1.3 TCWD IMPORTED PURCHASES

Currently, approximately 70 percent of the District's supply needs are met by water imported by MWD and purchased from MWDOC. Lake Mathews is located in western Riverside County east of the Santa Ana Mountains, 10 miles southwest of the City of Riverside. Lake Mathews was constructed in the 1930's as the terminal reservoir for MWD's Colorado River Aqueduct. It also receives local runoff and has historically received about four percent from the SWP and, as of recently, is capable of receiving a greater quantity of SWP supply via MWD's Inland Feeder.

When the District purchases imported raw water, the supply is conveyed from Lake Mathews via the Lower Feeder to the Santiago Lateral. From the Santiago Lateral, water is conveyed to and through the V.B. Baker Aqueduct to the District's Dimension WTP. The Lower Feeder also provides water to MWD's Robert B. Diemer Treatment Plant in Yorba Linda. The treated water is conveyed through the Allen McColloch Pipeline (AMP) to the District.

The District has a total capacity to convey 7,240 AFY of purchased water supply with current and planned water facilities. The annual capacity includes 4,340 AFY in the Baker Aqueduct and 2,900 AFY in the AMP. In addition, the District has an additional 2 cubic feet per second (cfs) hydraulic capacity (1,450 AFY) in the AMP should additional water become available and needed, as discussed below.

The imported District supplies indicated in Table 16 represent the maximum annual purchase made by the District during the past five years of 3,600 acre-feet. This imported supply is typically purchased for immediate use or for storage in the distribution system. During the five-year period of 2005-06 through 2009-10, the District purchased 2,907 afy on average. Table 17 presents the wholesale provider's

estimate of available supply. This information was obtained from MWDOC for its supplies imported by MWD.

Wholesale Supplies — Existing and Planned Sources of Water (AF)						
Wholesale Sources	Contracted Volume	2015	2020	2025	2030	2035
Imported Water from MWDOC	Based on Total MWDOC Entitlement	3,600	3,600	3,600	3,600	3,600

The reliability of MWD’s supply was addressed in its 2010 RUWMP and in MWDOC’s 2010 RUWMP and is summarized in Section 5. MWD ensures a highly reliable supply of water – over 100 percent of average annual demands – to its member agencies during average, dry year, and multiple dry years.

4.2 GROUNDWATER RESOURCES

The District owns two wells that pump from the San Juan Valley Groundwater Basin. This groundwater source is highly desirable in terms of water quality, cost, and utilization of local energy resources. The water pumped from these wells is a valuable District’s water supply, and it contributes to decreasing Southern California’s dependence on imported water supplies. However, because it is subject to interruption during drought conditions that occur occasionally in the region, the District cannot count on groundwater as a reliable supply source during periods of drought and peak demands.

According to DWR’s Groundwater Bulletin 118-04, located in Appendix D), the San Juan Valley Groundwater Basin (Groundwater Basin Number: 9-1) underlines the San Juan Valley and several tributary valleys in Southern Orange County. Figure 4.1 shows the South Coast Hydrologic Region which includes the San Juan Basin. The basin is bounded on the west by the Pacific Ocean and otherwise by tertiary semi-permeable marine deposits. Average annual precipitation ranges from 11 to 15 inches.

In Bulletin 118, DWR classified the San Juan Basin as a Type A Groundwater Budget, indicating that the basin was investigated and modeled to calculate a groundwater budget. Bulletin 118 did not identify the San Juan Basin as being overdrafted, nor did it project that the basin will become overdrafted if the present management activities continue.

The Rose Canyon and Lang Wells pump water from a maximum depth of about 40 feet from the Arroyo Trabuco aquifer that is part of the San Juan Basin. The Rose Canyon Well has been a District-owned facility since the mid-1960s, and the District has owned the Lang Well since the early 1980s. These wells were originally privately owned and were dedicated to the District for the beneficial use of its customers.

Figure 4-1 South Coast Hydrologic Region

Chapter 7 | South Coast Hydrologic Region

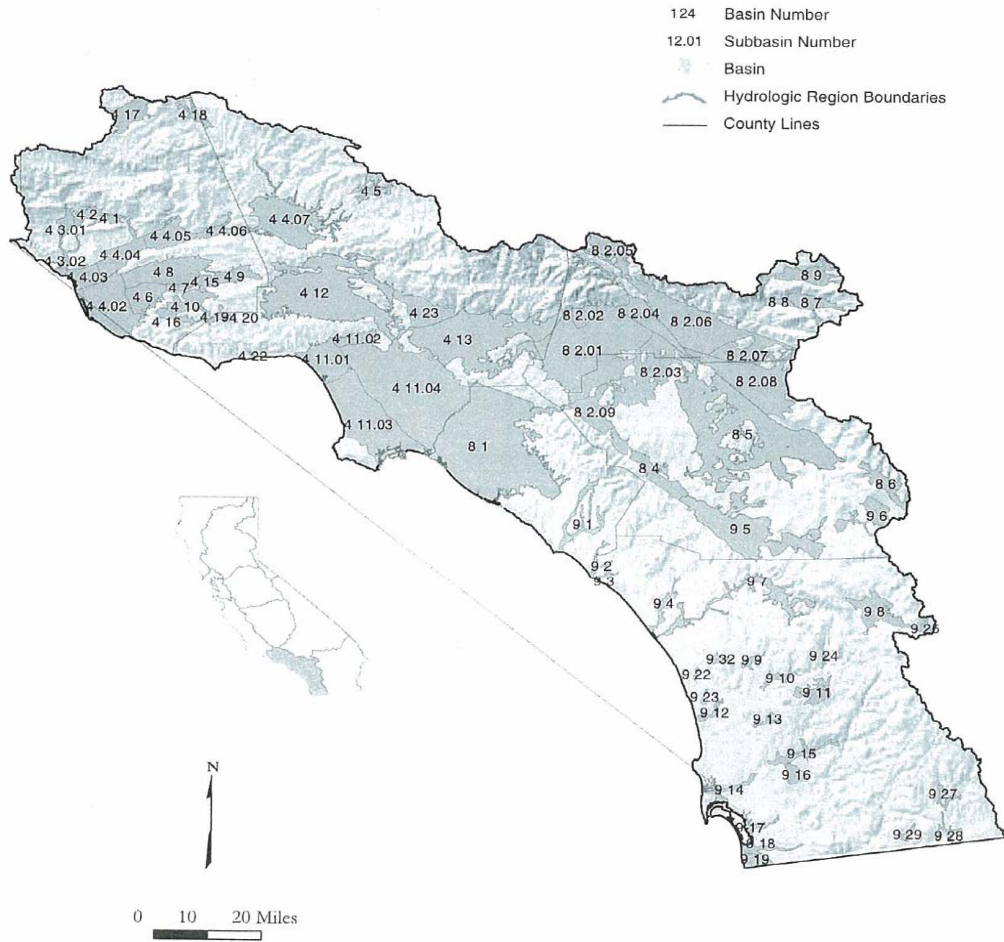


Figure 31 South Coast Hydrologic Region

The District has utilized these two wells since their dedication. Production varies depending on seasonal rainfall. In wet years, there is sufficient recoverable water to allow the wells to be operated for over six months. However, in years of average runoff conditions, the wells may operate for up to six months before water levels drop too low to maintain pumping. In dry years, the wells have only been operable for as few as two months. Based on this data, it is apparent that the wells cannot reliably help meet the high demands in the summer months or during periods of drought.

The two wells are housed within the Trabuco Creek Well Facility (TCWF) located on Rose Canyon Road. From ground level to a depth of 30 feet, the substrate is riverbed alluvium and cobbles. From 30 to 40 feet, the substrate is fine-grained siltstone. The TCWF was constructed during 2010 and early 2011, and began operation in February 2011. Treated water is conveyed directly into the distribution system. Total groundwater deliveries from Rose Canyon and Lang Wells, treated at the TCWF, averaged 279 AFY over the past five years. This amount was included in Table 16.

A third well, the Upper Schwendeman (US) Well has been a part of the District’s source of supply in the past through a leasing arrangement with a private party. This well has a depth of about 160 feet and has historically produced up to 168 AFY. The most recent time the District utilized the water supply in US Well during the UWMP reporting period of 2006 through 2010, were the months of January through June and December of 2006. The amount of water pumped from US Well is included in Table 18, Groundwater - Volume Pumped.

Table 18						
Groundwater — Volume Pumped (AF)¹						
Basin name	Metered or Unmetered	2006	2007	2008	2009	2010
San Juan Basin	Metered	648	0	192	264	318
Total groundwater pumped		648	0	192	264	318
Groundwater as a percent of total water supply		16%	0%	4%	7%	9%

¹ Includes US Well production in 2006.

Table 19 shows the amount of groundwater projected to be pumped. Currently, the District has no effective leasing agreement with the private party to utilize the US Well. It is therefore not included in projected supplies.

Table 19					
Groundwater — Volume Projected to be Pumped (AF)					
Basin Name	2015	2020	2025	2030	2035
San Juan Basin	279	279	279	279	279
Total groundwater pumped		279	279	279	279
Percent of total water supply		6%	6%	6%	6%

¹Based on average well production of Rose Canyon and Lang Wells only for previous five years.

4.3 TRANSFER OPPORTUNITIES

The District has the capability to transfer and exchange water to and from the District with neighboring districts, including SMWD, IRWD, and El Toro Water District. Through various arrangements, water can

be transferred/exchanged to and from these and other districts for short durations such as emergencies or water transmission line breaks. MWD, MWDOC, and the District have and will continue to explore opportunities for water exchanges and transfers that benefit the region. Based on the current availability of supplies, the District has no plans for contractually committing to any future short term or long term water transfers or exchanges at this time, as indicated in Table 20.

Table 20			
Transfer and Exchange Opportunities			
Transfer agency	Transfer or exchange	Short-term or long-term	Proposed Volume
None	N/A	N/A	None
Total	--	--	--

4.4 DESALINATED WATER OPPORTUNITIES

The District’s service area is located in the foothills and canyon areas of the Santa Ana Mountains and is not proximate to the Pacific Ocean. There are no sources of brackish groundwater either, thus no opportunities for desalination exist. Therefore, it’s not economical or feasible to pursue desalination as an additional source of supply unless it were through an in-lieu transfer with other MWDOC agencies that have access to a desalination supply.

4.5 RECYCLED AND RECLAIMED WATER OPPORTUNITIES

The District produces a non-potable water supply from both urban runoff and reclaimed wastewater. These recycled water supplies provide a reliable and drought proof non-potable source of water, which contribute to reducing the region’s reliance on imported supplies.

4.5.1 WASTEWATER SYSTEM DESCRIPTION AND WASTEWATER DISPOSAL

The District owns and operates the RRWWTP which provides wastewater collection and treatment for developments on the east side of the District. Current treatment levels meet or exceed recycled water criteria and applications as defined in the California Administrative Code, Title 22, Division 4.

The District utilizes 100 percent of the recycled wastewater produced at its RRWWTP. Current and projected recycled water supply from the RRWWTP is presented in Table 21.

Table 21							
Recycled Water, Wastewater Collection and Treatment (AF)							
Type of Wastewater	2005	2010	2015	2020	2025	2030	2035
Wastewater collected & treated in service area	789	751	1,035	1,035	1,035	,1035	1,035
Volume that meets recycled water standard	789	751	1,035	1,035	1,035	1,035	1,035

Since part of the District’s service area has District sewage collection but not treatment, disposal of these flows are discussed here. The western portion of the District is served by SMWD which treats the flows collected by the District. Approximately 0.08 to 0.1 million gallons per day (mgd) of District service area flows are treated at SMWD’s Chiquita Wastewater Reclamation Plant of which the effluent is

either reused or discharged to the Pacific Ocean near San Juan Capistrano. Table 22 presents the flows from the SMWD facilities which are discharged to an ocean outfall.

Recycled Water — Non-recycled Wastewater Disposal (mgd)¹							
Method of disposal	Treatment Level	2010	2015	2020	2025	2030	2035
Discharge through Ocean Outfall	Tertiary	2.5	2.5	2.5	2.5	2.5	2.5
Total		2.5	2.5	2.5	2.5	2.5	2.5

¹ Based on the SMWD’s Chiquita Wastewater Reclamation Plant capacity of 7.5 mgd of which 5.0 mgd is recycled. The District service area contributes about 0.08 to 0.1 mgd to this plant.

In addition to recycled wastewater, urban runoff is captured in Dove Lake and pumped back to the reclaimed water storage reservoir for distribution to non-potable water users. This system is called the Dry Season Water Recovery Project. By utilizing aeration and vegetation controls to improve the water quality in Dove Lake throughout the year, an additional source of non-potable water is available to the District. The District distinguishes between this source and recycled water reclaimed at its wastewater treatment plant by designating the treated wastewater as reclaimed, and the runoff as recycled. This supply is used in the District’s non-domestic water system.

To be consistent with the nomenclature in the State Guidebook and recommended tables, both sources are called recycled but are accounted for separately. Since coming on-line, the urban runoff supply has averaged 100 AFY, which is almost 15 percent of the total amount of recycled water used annually for irrigation within the District. The Dry Season Water Recovery Project is planned to be expanded from 100 AFY to 150 AFY by 2020.

4.5.2 POTENTIAL FUTURE RECYCLED WATER USES

Recycled water is a very reliable water source because it is consistently available from the District’s wastewater reclamation plant. The District also has the capability of adding domestic water as well as the captured urban runoff stored in Dove Lake (see Figure 4.2) to the recycled water storage reservoir at the reclamation plant (see Figure 4.3). The District has been adding customers to its non-domestic water system to expand the use of recycled water periodically since the construction of the wastewater reclamation plant. This system is approaching its capacity in terms of demand versus recycled water production, future plans are to expand the non-potable distribution system and the RRWWTP as new development occurs in the eastern and potentially central portions of the District.

The District is continuing to connect new landscape irrigation services to its recycled water system. In 2007, the District completed the Robinson Ranch Road Recycled Water (4RW) Pipeline project to extend recycled water to areas along Plano Trabuco Road and its intersection with Robinson Ranch Road. The extension to this area also borders with neighboring SMWD’s service area and included a recycled water intertie with SMWD’s recycled water system. During 2004/05, the District entered into a joint project with the City of RSM to bring recycled water to the City’s federally funded grant project – the Plano Trabuco Median Project. The completion of the 4RW and Plano Trabuco Median Project provided recycled water to the City and allowed the District to expand its existing recycled system to include additional landscaped areas, and potentially serve areas within the SMWD’s service area that are located near Plano Trabuco Road.

Another example of the District’s dedication to the reuse of urban water runoff is the Dry Season Water Recovery Project’s facilities located within the Dove Canyon community. These are two inline facilities located on the Dove Canyon Golf Course and near the backside of the Dove Canyon community and bordering with the Audubon Society’s Starr Ranch. Construction of the pump stations and pipelines was completed in 2007 as a result of a joint project with the SMWD and the Audubon Society. The two pump stations, Dove Creek Pump Station (see Figure 4.4) and Tick Creek Pump Station (see Figure 4.5), are designed to capture urban water runoff from the Dove Canyon Golf Course and areas from the Dove Canyon community. The captured urban runoff is shared equally with SMWD and serves to decrease each district’s demand on imported water for landscape irrigation purposes and increase each district’s recycled water supply. On average, the District’s portion of the amount of urban water that is captured and reused is approximately 100 AFY.

Table 23 presents the potential future uses of recycled water for the District. The District’s categories for recycled water are agricultural and landscape irrigation only, with golf course irrigation categorized under landscape irrigation. The following DWR Guidebook categories are not used by the District: commercial irrigation, golf course irrigation, wildlife habitat, wetlands industrial reuse, groundwater recharge, seawater barrier, geothermal/energy, and indirect potable reuse.

Table 23						
Recycled Water Potential Future Use (AF)						
User Type	Treatment Level	2015	2020	2025	2030	2035
Agricultural Irrigation	None	0	0	0	0	0
Landscape Irrigation ¹	Title 22 Tertiary	1,035	1,035	1,035	1,035	1,035
Total		1,035	1,035	1,035	1,035	1,035

¹ Includes golf course irrigation.

Table 24 presents the future recycled water use projections from the 2005 UWMP compared to the 2010 actual use data. Only agricultural and landscape irrigation data were applicable in this analysis.

Table 24		
Recycled Water 2005 UWMP Use Projection Compared to 2010 Actual (AF)		
Use Type	2010 Actual Use	2005 Projection for 2010
Agricultural irrigation	0	0
Landscape irrigation ¹	751	956
Total	751	956

¹ Includes golf course irrigation.

The following Figures 4.2 through 4.5 present photographs of District recycled water facilities, including Dove Lake, the RRWWTP Recycled Water Storage Reservoir, Dove Creek Pump Station, and Tick Creek Pump Station.

Figure 4.2 Dove Lake



Figure 4.3 Robinson Ranch Wastewater Treatment Plant Recycled Water Storage Reservoir



Figure 4.4 Dove Creek Pump Station



Figure 4.5 Tick Creek Pump Station



4.5.3 RECYCLED WATER OPTIMIZATION

The District has experienced little resistance to the development of a recycled water system and the expansion of the recycled water service area. Conversion of areas from domestic water irrigation to recycled water irrigation has been met with favorable reaction in the community due primarily to the lower rates and increased reliability during periods of drought.

As mentioned previously, the District cannot convert too many more areas to recycled water without having additional treated wastewater and additional seasonal storage available. As the flow to the RRWRP increases, the most cost-effective areas in the Robinson Ranch/Trabuco Highlands area will be converted from domestic to recycled water irrigation. As the RRWWTP is expanded, new development areas in the eastern and potentially central portion of the District will be constructed with a separate recycled water irrigation system. Until flows increase as new units are occupied, irrigation demands from these new areas will initially be supplemented with domestic water or available Dove Lake water, both of which are currently available for supplementing reclaimed water demands.

Irrigation customers are required to tie into the recycled system and use recycled water when it is available. At the present time the cost of recycled water is 75 percent of the domestic water rate. As shown in Table 25, this financial incentive of purchasing recycled versus domestic water is the primary incentive to encourage the use of recycled water.

Table 25						
Methods to Encourage Recycled Water Use						
Actions	Projected Results (AF)					
	2010	2015	2020	2025	2030	2035
Financial incentives						
Cost is up to 75 percent of domestic water rate	751	1,035	1,035	1,035	1,035	1,035
Total	751	1,035	1,035	1,035	1,035	1,035

4.6 FUTURE WATER PROJECTS

The District is currently a participant in the proposed design and construction of the IRWD Baker Regional WTP (Baker WTP). The Baker WTP is currently in the final design phase and is proposed to be a baseline operated facility designed to treat imported untreated water from MWD, similar to the District's Dimension WTP. In addition, the Baker WTP is designed to treat water from Irvine Lake, in particular during events when untreated water from MWD may not be available due to planned maintenance or during an emergency situation.

The Baker WTP is a regional water treatment facility with a proposed design capacity of 43.5 cfs. The District's plant capacity ownership equates to approximately 2 cfs or 1,450 AFY if supply is available and capacity fully utilized. The District's existing capacity in the V.P. Baker Aqueduct, which will supply untreated water to the Baker WTP, and the proposed capacity in the Baker WTP will provide the District with an optional source of treated water and an emergency source of treated water. Construction of the facility is scheduled to begin in early 2012 with facility startup and operation in 2013, as shown in Table 26.

Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal Year Supply	Single Dry Year Supply	Multiple-dry First Year Supply	Multiple-dry Second Year Supply	Multiple-Dry Third Year Supply
Baker WTP ¹	Ongoing	2013	None	1,450	1,450	1,450	1,450	1,450
Total			0	1,450	1,450	1,450	1,450	1,450

¹The Baker Plant increases treatment capacity to allow the District to utilize more of its imported water entitlement.

SECTION 5 – WATER SUPPLY RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING

During the previous five years, Southern Californians have faced significant changes to their water supply. In addition to an extended drought on the Colorado River, a dry period began locally in 2007. In December of 2008, a federal court decision restricted SWP pumping from the Sacramento River-San Joaquin River Delta (Delta), and a long-term Delta solution is still needed. Due to the potential for water shortages, MWD imposed water allocations for MWDOC. These water shortage allocations were then imposed on MWDOC member agencies, including the District.

The District's imported water supply is currently vulnerable to water shortage allocations, seasonal or climatic shortages, as well as catastrophic events during conveyance. These challenges require the District to be proactive in its supply planning. The District has a water shortage contingency plan in order to respond to emergencies or other external events. This section summarizes the reliability of District water supplies, potential impacts to supplies due to water quality concerns, and District planning for droughts including water shortage contingency planning.

5.1 WATER SUPPLY RELIABILITY

The uncertainty of existing water supplies due to hydrologic variations and regulatory constraints has emphasized the need to address water supply reliability. Water supply reliability, or the ability to reliably supply water to meet the District's demands, was assessed for normal, single dry water year, and multiple dry water year conditions. The assessment consisted of determining the potential impacts of climatic factors on water supply sources and comparing these with supplies during a normal water year. The District's source water consists of imported supplies, local groundwater sources, and recycled water with the majority of the supply being imported water purchased from MWD through MWDOC.

Hydrologic conditions were determined by MWD and MWDOC by evaluating retail demands, local supplies, imported supplies, and historical hydrology data for the region dating from 1922 to 2004. MWDOC's 2010 RUWMP describes, in detail, the method of analysis and assumptions used in its assessment of the reliability of its water supply to its member agencies. The basis of hydrologic conditions was important in determining the amount of water available to MWDOC from MWD; however, it may not equally represent local water supplies. To assess the reliability of projected local water supplies, historical groundwater production records and recycled water plans were reviewed and evaluated.

The majority of the local District water supply is recycled water used for landscape irrigation; this supply is very reliable during periods of single and multiple dry years. However, local groundwater sources will decrease. Production of the Rose Canyon and Lang Wells has varied from 0 AFY to 1,000 AFY, based on climatic conditions in the watershed. If necessary, to make up the additional local water that is typical of normal years, the District can increase its use of stored urban runoff in Dove Lake. Water from Dove Lake can be used to supplement recycled water in the non potable water system. In the past, the District supplemented recycled water demands through Dove Lake and through the purchase of domestic water conveyed to the RRWWTP Recycled Water Storage Reservoir through an air gap connection. With recent improvements at Dove Lake and the construction of the Dry Season Water Recovery Project in Dove Canyon, the District is also now capable of further managing and supplying the recycled water storage reservoir, providing additional water to meet current and projected non-potable demands.

MWDOC evaluated the impact dry years can have on demands. Since more water is typically used during dry years, MWDOC determined that the increase in its member agency demands was 6.6 percent above normal years. This increase in demands can be met by increasing purchases of imported water to the District. MWD and MWDOC have committed through their evaluations of available and planned sources and member agency demands, that they will reliably supply the District with greater than normal water supplies during periods of single and multiple dry years.

Although pipeline capacity rights do not guarantee the availability of water, adequate capacity ensures the ability to convey water when it is available to the District. There is adequate capacity to ensure that all imported water supplies assumed in this section can be conveyed to the District's service area from existing water transmission facilities.

5.1.1 INFLUENCING FACTORS

Factors that could potentially influence the reliability of District water supplies include environmental, legal, water quality, and climatic factors. Although climatic factors affect all water supplies, a drought or court mandated pumping restrictions could directly affect District imported supply availability. However, knowing this vulnerability, MWD has aggressively pursued and acquired additional water supplies to diversify its portfolio and is continuing to increase supplies. The following are some of the factors identified by MWD that may have an impact on the reliability of MWD supplies.

- **Environmental Factors**

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

- **Legal Factors**

Listings of additional species under the Endangered Species Act and new regulatory requirements could impact SWP operations by requiring additional export reductions, releases of additional water from storage or other operational changes impacting water supply operations.

- **Water Quality Factors**

Water imported from the Colorado River Aqueduct contains a high level of salts. The operational constraint is that this water requires blending with SWP supplies to meet the target salinity of 500 mg/L of total dissolved solids (TDS). Another water quality concern is related to the Quagga Mussel. Controlling the spread and impacts of Quagga Mussels within the Colorado River Aqueduct service area requires extensive maintenance and results in reduced operational flexibility.

- **Climatic Factors**

Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. The areas of concern for California include the reduction in Sierra Nevada snowpack, increased

intensity and frequency of extreme weather events, and rising sea levels causing increased risk of levee failure.

These issues may have impacts on MWD supplies, as summarized in Table 27. It is believed by MWD that climatic factors may have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however, severe pattern changes may occur in the future.

In addition to imported supplies, the District’s San Juan Basin supply is directly affected by climatic conditions in the Trabuco Creek watershed. This supply has limited availability during late summer months and dry years.

Table 27 (DWR Table 29)		
Factors Resulting in Inconsistency of Supply		
Water supply sources	Limitation quantification	Information Regarding Environmental, Legal, Water Quality, or Climatic Factors
Local Groundwater	Variable	Climatic: The local San Juan Basin supply is dependent upon rainfall in the watershed.
Imported MWD Supply	None	Environment, Legal, and Climate: MWD supply sources are dependent upon rainfall and snowmelt in their respective watersheds. Delta supplies are subject to legal restrictions for pumping from the Delta.

5.1.2 WATER QUALITY

MWD has been active in responding to water quality concerns by protecting source water quality and developing water management programs that maintain and enhance water quality. Efforts have been focused on managing total organic carbon, bromide concentrations, pathogenic microbes, and TDS. Contaminants that cannot be sufficiently controlled through the protection of source waters are handled through the change of water treatment methods, protocols, or blending. These practices increase costs to the District and/or reduce operation flexibility and safety margins to MWD. MWD anticipates no significant reduction in water supply availability from new sources due to water quality concerns. A description of the water quality of MWD’s supplies can be found in its 2010 RUWMP.

The District conducted a watershed sanitary survey of the Trabuco Creek watershed due to the designation of its well supplies as being under the influence of surface water. The survey determined that there is some risk to water quality associated with septic and alternative waste disposal systems in the watershed as well as recreational activities. The District’s groundwater supplies, however, are treated at the new TCWF thus reducing the risk of any water quality limitations affecting this supply. As presented in Table 28, there are no restrictions on the availability of both imported water supplies and local groundwater supplies.

Table 28 (DWR Table 30)							
Water Quality — Current and Projected Water Supply Impacts							
Water Source	Description of Condition	2010	2015	2020	2025	2030	2035
Local Groundwater	None	0	0	0	0	0	0
Imported MWD Supply	None	0	0	0	0	0	0

5.2 DROUGHT PLANNING

Climatological data in California has been recorded since the year 1858. During the twentieth century, California experienced three periods of severe drought: 1928-34, 1976-77 and 1987-92. The year 1977 is considered to be the driest year of record in the Four Rivers Basin by DWR. These rivers flow into the Delta and are the source waters for the SWP, thus MWD’s selection as the single driest base year. However, Southern California and, in particular Orange County, sustained few adverse impacts from the 1976-77 drought, due in large part to the availability of Colorado River water and groundwater stored in the Basin. The 1987 to 1992, 2000 to 2003, and 2007 to 2009 droughts had a greater impact on Southern California and Orange County.

5.2.1 BASIS OF WATER YEARS

To analyze the variability of reliability of imported supplies due to climate, hydrologic conditions that define year types were determined. The years identified by MWD and presented in Table 29 reflect these year types: average, single dry year, and multiple dry years. The year types are defined below.

Table 29 (DWR Table 27)	
Basis of Water Year Data	
Water Year Type	Imported Water Base Years (Local Base Years)
Normal Water Year	Average of 1922 through 2004 (Local 2001)
Single Dry Water Year	1977 (Local 2007)
Multiple Dry Water Years	1990, 1991, 1992 (Local 2007-2009)

Average/Normal Water Year

The normal year most closely represents median runoff levels and patterns. The supply quantities for this condition were derived from MWD’s historical average yields: MWD used 1922 through 2004 to establish this normal year. However, evaluation of the average per capita consumption (gross water use and population) within the District’s service area for years 2001 to 2010 is best represented in the year 2001.

Single Dry Year

This is defined as the year with the minimum useable supply. The supply quantities for this condition are derived from the minimum historical annual yield. MWD identified 1977 as the single driest year since 1922. In 2007, the District’s groundwater wells did not produce any water and was the single driest year for District groundwater supplies within the last ten years, thus representing the driest local conditions.

Multiple Dry Years

This is defined as three consecutive years with the minimum useable yield or supply. Water systems are more vulnerable to these droughts of long duration, because they deplete water storage reserves in

local and state reservoirs and groundwater basins. MWD identified 1990 through 1992 as the driest multiple years since 1922 when the least amount of imported water was available. The years 2007 through 2009 were the driest years for District groundwater supplies within the last ten years, thus representing the driest local conditions.

MWD has extensive programs and plans to increase supply reliability, which are addressed in its 2010 RUWMP. MWD determined in its 2010 RUWMP that the region could provide reliable water supplies under both the single driest year and the multiple dry year hydrologies, with a surplus of supply for all dry year scenarios through 2035. MWDOC has confirmed this assumption of fully reliable supplies during all year types.

Table 30 summarizes historical District water demands, obtained from MWDOC, for the various water years. Because the District has been dependent on imported supplies, most of its demands were met with MWD supplies, increasing during the dry years indicated. However, providing the amount purchased does not indicate availability of supply. It reflects District demands, which are based on population and other conditions at the time and which were actually reduced during the multi-year drought by the District's water use efficiency programs.

Table 30 (DWR Table 28)				
Supply Reliability — Historical Conditions (AF)				
Average / Normal Water Year (2001)	Single Dry Water Year (2007)	Multiple Dry Water Years		
		Year 1 (2007)	Year 2 (2008)	Year 3 (2009)
4,330	4,471	4,471	4,409	3,920
Percent of Average/Normal Year:	103%	103%	102%	91%

MWD states in its 2010 RUWMP that it can provide reliable water supplies under both the single driest year and the multiple dry year hydrologies. Table 31 presents MWD's historical supply capability during multiple dry years as compared with its average year supplies applied to the next three years (2011 through 2013). Responses to an actual drought or the continuation of the recent drought would have followed the water use efficiency mandates of MWD's Water Surplus and Drought Management Plan (WSDM Plan), along with implementation of the appropriate stage of the District's water conservation ordinance discussed later in this section. Details of the WSDM Plan can be found in Appendix A.4 of MWD's 2010 RUWMP.

Table 31				
Supply Reliability — Current Water Sources (AF)				
Water Supply Sources	Average / Normal Water Year Supply	Multiple Dry Water Year Supply		
		Year 2011	Year 2012	Year 2013
Imported MWD Supply	3,485,000	2,142,000	1,825,000	2,127,000
Total	3,485,000	2,142,000	1,825,000	2,127,000
Percent of normal year:	100%	62%	52%	61%

Source: MWD 2010 RUWMP Tables 2-11 and 1-6.

5.2.2 SUPPLY AND DEMAND: NORMAL YEAR

Average water year availability for the District is compared to projected water demands through 2035 in Table 32. Although data in Table 32 reflect supplies available to MWD in the past, MWD and MWDOC have indicated in their respective 2010 RUWMPs that MWD supplies will be available to meet District demands in the future for all water year types. The availability of existing and future water supplies, as presented in Table 16, were used for the analysis of average year reliability. Average year reliability is expected to be at least 100 percent of demands. When compared with total projected water demands from Table 14, data summarized in Table 32 indicate that a surplus of supplies will be available to meet District demands during a normal water year.

Table 32					
Supply and Demand Comparison — Normal Year (AF)					
	2015	2020	2025	2030	2035
Supply Totals (from Table 16)	5,034	5,064	5,064	5,064	5,064
Demand Totals (from Table 14)	4,615	4,650	4,778	4,900	5,018
Difference	419	414	286	164	46
Difference as % of Supply	8%	8%	6%	3%	1%
Difference as % of Demand	9%	9%	6%	3%	1%

5.2.3 SUPPLY AND DEMAND: SINGLE DRY YEAR

Supplies and demands for the District service area were analyzed to determine impacts associated with a single dry year. The projected single dry year supply is based on the availability of water presented in Table 16, excluding local groundwater. However, Table 16 supplies reflect the greatest amount of historical imported purchased water; imported water supplies are available from MWDOC in the future to meet a greater demand if necessary. Therefore, an increase in imported purchases was included to reflect actual availability of supplies during a single dry year.

A 6.6 percent “bump” in the combined total water use (demands) from Table 14 was added to reflect a typical increase in demands associated with the first year of drier weather, before additional conservation outreach is implemented. MWDOC developed this average 6.6 percent increase in demands based on data for its member agencies.

Table 33 presents a comparison of projected single dry year water supply availability to the bumped single dry year water demands projected for the next 25 years. This table indicates that the region can provide reliable water supplies under the single driest year hydrology including the bumped increase in demands. MWD has documented that it is 100 percent reliable for supplying water to meet single dry year demands, even with the higher demands associated with dry weather.

Table 33					
Supply and Demand Comparison — Single-Dry Year (AF)					
	2015	2020	2025	2030	2035
Supply Totals¹	4,919	4,957	5,093	5,224	5,349
Demand Totals²	4,919	4,957	5,093	5,224	5,349
Difference	0	0	0	0	0
Difference as % of Supply	0 %	0 %	0%	0%	0%
Difference as % of Demand	0 %	0 %	0%	0%	0%

¹ Single dry year supplies from Table 16, less local groundwater and augmented with additional purchases if necessary.

² Reflects 6.6 percent increase, as estimated by MWDOC, 2010, in the first dry year demands.

5.2.4 SUPPLY AND DEMAND: MULTIPLE DRY YEARS

The projected multiple dry year supply is based on the greatest historical amount of purchased imported water as presented in Table 16, plus recycled and captured urban runoff. However, imported water supplies are available in the future to meet a greater demand if necessary. Therefore, an increase in imported purchases was included, where necessary to reflect actual availability of supplies during multiple dry years.

As with the single dry year demands, total projected water use from Table 14 was increased to reflect a single dry year bump of 6.6 percent associated with the first year of drier weather, before additional conservation programs are implemented. Typically for the District, after the first dry year in which demands increase, demands then decline due to raised consumer awareness of a dry period occurring. The third dry year typically reflects a decrease in demands over the second year. However, MWDOC is using a more conservative demand estimate for its RUWMP analysis: it applied the single dry year increase in demands to all three years of the multiple dry year scenario demands. This very conservative increase in demands for the second and third dry years was not included here because the District's demand pattern does not reflect this sustained increase in demands, as reflected in the demands during the recent local dry period of 2007 to 2009.

Table 34 presents a comparison of projected multiple dry year water supply availability over the next 25 years to the multiple dry year water demands which were increased for the first of the three years. Again, MWD has documented that its supplies will be 100 percent reliable for multiple dry year demands, even with the higher demands of 6.6 percent in the first year.

Table 34						
Supply and Demand Comparison — Multiple Dry-Year Events (AF)						
		2015	2020	2025	2030	2035
Multiple-dry year first year supply	Supply Totals¹	4,919	4,957	5,093	5,224	5,349
	Demand Totals²	4,919	4,957	5,093	5,224	5,349
	Difference	0	0	0	0	0
	Difference as % of Supply	0 %	0%	0%	0%	0%
	Difference as % of Demand	0 %	0%	0%	0%	0%
Multiple-dry year second year supply	Supply Totals¹	4,755	4,785	4,785	4,900	5,018
	Demand Totals	4,615	4,650	4,778	4,900	5,018
	Difference	140	135	8	0	0
	Difference as % of Supply	3%	3%	0%	0%	0%
	Difference as % of Demand	3%	3%	0%	0%	0%
Multiple-dry year third year supply	Supply Totals¹	4,755	4,785	4,785	4,900	5,018
	Demand Totals	4,615	4,650	4,778	4,900	5,018
	Difference	140	135	8	0	0
	Difference as % of Supply	3%	3%	0%	0%	0%
	Difference as % of Demand	3%	3%	0%	0%	0%

¹ Multiple dry year supplies from Table 16, less local groundwater and augmented with additional purchases if necessary.

² Reflect 6.6 percent increase, as estimated by MWDOC, 2010, in the first of multiple dry year demands.

5.3 WATER SHORTAGE CONTINGENCY PLANNING

Actions that will be taken by the District in the event of a catastrophic reduction in water supplies are presented here. The most likely events may be a regional power outage, wildfires, reservoir outages, and landslides. Other catastrophic events include an earthquake in the Delta affecting imported water supplies; an earthquake in Southern California affecting the District service area, facilities, and local supplies; flooding, and other disasters.

5.3.1 CONSERVATION ORDINANCE BACKGROUND

On January 1, 2009, the District adopted Water Conservation Ordinance Number 2008-18 (Ordinance) with the purpose of establishing a water conservation and supply shortage program to reduce water consumption within the District service area through conservation efforts, allow for effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water at all times, and maximize the efficient use of water within the District to avoid and minimize the effects and hardship of water shortages to the greatest extent possible.

This Ordinance established permanent water conservation standards intended to alter behavior related to water use efficiency for non-shortage conditions and further establish three levels of water supply

shortage response actions to be implemented during times of declared water shortage or declared water shortage emergencies, with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies as determined by the District Board of Directors.

The Ordinance was designed with additional guidelines, penalties, cost recovery systems, enforcement procedures and other rules and regulations to assist in the conservation of water. The Conservation Ordinance was designed to prohibit the waste of water supplied to District customers, as well as allow the District to restrict the usage of water during any emergency caused by drought, or other threatened or existing water shortage. The Ordinance can be found in Appendix E.

5.3.2 MANDATORY WATER USE PROHIBITIONS

A component of the District's Ordinance is the prevention of the waste of water at all times. Section 6 of the Ordinance established the *Permanent Water Conservation Requirements – Prohibition Against Waste* (Permanent Provisions). These Permanent Provisions, listed below and found in Table 37, are the Ordinance's water conservation requirements, which are effective at all times while the Ordinance is in effect. Copies of the Permanent Provisions are available at the District office and on the District's website. The Permanent Provisions are as follows.

- **Limits on Watering Hours:**
Watering or irrigating of Landscape with potable water is prohibited between the hours of 9:00 a.m. and 6:00 p.m.
- **Limit on Water Duration:**
Watering or irrigating of landscape with potable water, which is not continuously attended, is limited to no more than ten minutes per station, per day.
- **No Watering While Raining:**
Watering or irrigating while raining is expressly prohibited.
- **No Excessive Water Flow or Runoff:**
Watering or irrigation of any landscaped area in a manner that allows excessive flow onto an adjacent hard surface is expressly prohibited.
- **No Washing Down Hard or Paved Surfaces:**
Prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of hand-held bucket or hose equipped with an automatic shut off nozzle.
- **Limits on Washing Vehicles:**
Using water to wash or clean a vehicle is prohibited except by use of hand-held bucket or hose equipped with an automatic shutoff nozzle.
- **Swimming Pools and Spas:**
No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with public health regulations, or upon written recommendation of a pool maintenance repair professional.

- **No Indiscriminate Use:**
No person shall cause or permit the indiscriminate running of water not otherwise prohibited above which is wasteful and without reasonable purpose.
- **Obligation to Fix Leaks or Malfunctions:**
Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user’s plumbing or distribution system for any period of time after such escape should have reasonably been discovered and corrected is prohibited. If unattended malfunctions are observed, the District may turn off the irrigation to the affected area until such time the property owner can respond to correct.
- **Water Fountains and/or Decorative Water Features:**
Must have a re-circulation water system.
- **Washing of Equipment and Machinery:**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirement with City or County may apply.
- **Cleaning of Structures:**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirements with City or County may apply.
- **Drinking Water Served Upon Request in Restaurants:**
Restaurants are only to serve and/or refill water upon request from patrons.

5.3.3 STAGES OF ACTION

Since various actions will need to be taken to continue water service during a disaster, especially for key functions such as fire fighting, the District has a staged response plan to invoke during declared water shortages. The stages are presented in Table 35.

Table 35		
Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages		
Stage Number	Water Supply Conditions	Percent Shortage
Permanent Provisions	Drought conditions	N/A
Level One	Total deliverable supply is 95 to 85%	5 to 15 Percent
Level Two	Total deliverable supply is 85 to 70%	15 to 30 Percent
Level Three	Total deliverable supply is 70% or less	30 Percent or Greater

Mandatory prohibitions against specific water use practices during each of the stages are provided in Table 36.

Table 36	
Water Shortage Contingency — Mandatory Prohibitions	
Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
PERMANENT PROVISIONS	Effective all times while Ordinance is in effect
<p>LEVEL 1 WATER WATCH: In addition to Permanent Provisions, irrigation during Warm Season is limited to four days a week; irrigation during Cool Season is limited to three days a week; irrigation is limited to five minutes per station; all leaks, breaks, or malfunctions must be repaired within 72 hours of notification by the District; no pavement/surface washing; other prohibited uses as determined by the District.</p>	A Level 1 Water Supply Shortage exists when the District determines that due to drought or other supply reduction, a water supply shortage exists, or will exist, and a consumer demand reduction is necessary to ensure supplies will be available to meet anticipated demands.
<p>LEVEL 2 WATER ALERT: In addition to Permanent Provisions and Level 1 Water Alert, irrigation during the Warm Season is limited to two days a week; irrigation during the Cool Season is limited to one day a week; all leaks, breaks, or other malfunctions must be repaired within 48 hours of notification by the District; the operation of any ornamental fountain or similar structure is prohibited; filling or refilling ornamental lakes or ponds is prohibited; refilling of more than one foot and initial filling of pools and spas with potable water is prohibited; other prohibited uses as determined by the District.</p>	A Level 2 Water Supply Shortage exists when the District determines that due to drought or other supply reduction, a water supply shortage exists, or will exist, and a consumer demand reduction is necessary to ensure supplies will be available to meet anticipated demands.
<p>LEVEL 3 WATER EMERGENCY: In addition to Permanent Provisions, Level 1 Water Watch, and Level 2 Water Alert, watering or irrigating of lawn, landscape, or other vegetated areas with potable water is prohibited; no washing of vehicles; all leaks, breaks, or other malfunctions must be repaired within 24 hours of notification by the District; no new potable water service, temporary meters, or permanent meters will be provided; the District may discontinue service to customers who willfully violate provisions of this section; other prohibited uses as determined by the District.</p>	A Level 3 Emergency exists when the Board of Directors finds and declares a water shortage emergency condition pursuant to California Water Code, Section 350, and requires a 30% consumer demand reduction.

5.3.4 CONSUMPTION REDUCTION METHODS

Consumption reduction methods to be used to reduce water use in the most restrictive stage of Level 3 Water Emergency Stage are listed in Table 37.

Table 37		
Water Shortage Contingency — Consumption Reduction Methods		
Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
No watering or irrigating of lawn, landscape, or other vegetated areas	Level 3 Water Emergency Stage	30
No washing of vehicles	Level 3 Water Emergency Stage	30

5.3.5 PENALTIES OR CHARGES FOR EXCESSIVE USE

Table 38 summarizes the penalties and violations described in Section 8 of the Ordinance.

Table 38	
Water Shortage Contingency — Penalties and Charges	
Penalties or Charges	Stage When Penalty Takes Effect
Written warning	First Violation of Ordinance provisions.
Fine not to exceed \$100.00	Second Violation within the succeeding twelve calendar months after an initial violation.
Fine not to exceed \$250.00	Third Violation within the succeeding twelve calendar months after an initial violation.
Fine not to exceed \$500.00; the District may install a water flow restrictor; the District may disconnect and/or terminate the customer's service.	Fourth Violation and any succeeding violation after an initial violation.

5.3.6 MECHANISMS TO DETERMINE ACTUAL REDUCTIONS

The District implements its Ordinance, which imposes prohibitions, regulations of water use, and penalties for violations of water use, during times of severe water shortages. Demands must be monitored frequently during emergency water shortages to enable the District to effectively manage the balance between supply and demand. All individual accounts in the District are metered, and overall water production and the status of the District's supply is continuously monitored through District facilities and its Supervisory Control and Data Acquisition System. Water production figures are recorded daily; weekly and monthly reports are prepared and monitored. These data are available to measure actual water savings resulting from the effectiveness of any water shortage contingency stage that may be implemented.

5.3.7 MWD/MWDOC WATER SHORTAGES

As stages of water shortage are declared by MWDOC, the District follows implementation of those stages and continues to monitor water demand levels. It is not until MWD's Shortage Stage 5 that MWD may call for extraordinary conservation. During this stage, MWD's Drought Program Officer will coordinate public information activities with MWDOC and monitor the effectiveness of ongoing conservation programs. Monthly reporting on estimated conservation water savings will be provided to MWDOC. The District will participate in member agency meetings with MWDOC to monitor and discuss water allocations. This will enable the District to be aware of imported water use on a timely basis as a result of specific actions taken in response to MWD's Water Shortage Contingency Plan.

5.3.8 REVENUE AND EXPENDITURE IMPACTS

During a catastrophic interruption of water supplies, prolonged drought, or water shortage of any kind, the District will experience a reduction in revenue due to reduced water sales. Expenditures may increase as damage to the water system requires emergency repairs or if additional water must be purchased at a higher rate. Expenditures may also go down as less water is pumped through the system, resulting in lower power costs. Water purchase expenses could also be lower during a catastrophic event as the availability of imported water is restricted.

The District receives water revenue from a service charge and a commodity charge based on consumption. The service charge recovers costs associated with providing water to the serviced

property, which does not vary with consumption. The commodity charge is based on water usage. Rates have been designed to recover the full cost of water service in the service and commodity charges. Therefore, the total cost of purchasing water would decrease as the usage or sale of water decreases.

However, there are significant fixed costs associated with maintaining a minimal level of service. Should an extreme shortage be declared and a large reduction in water sales occur for an extended period of time, the District would monitor projected revenues and expenditures. To overcome these potential revenue losses and/or expenditure impacts, the District may utilize reserves. If necessary, the District may reduce expenditures by delaying implementation of its Capital Improvement Program and equipment purchases, and/or adjust the work force, implement a drought surcharge, and/or make adjustments to its water rate structure.

SECTION 6 – DEMAND MANAGEMENT MEASURES

6.1 BACKGROUND

As a long-standing member of the CUWCC and signatory of the Memorandum of Understanding (MOU) regarding the conservation of urban water, the District is committed to the implementation of water use BMPs, the development of water conservation programs, and the education of District customers on the subject of wise water usage.

AB1420 conditions the eligibility for a water management grant or loan on implementing or scheduling for implementation the DMMs listed in Water Code section 10631(f), or in demonstrating that certain BMPs are not locally cost effective. These DMMs correspond to the fourteen BMPs listed and described in the CUWCC MOU. Based on this, DWR had determined that it will equate the DMMs with the BMPs for loan and grant funding eligibilities. Compliance on a regional basis requires participation in a regional conservation program, such as MWDOC's, that achieves the level of conservation equivalent to the amount of savings achieved if each of the participating urban water suppliers implemented the DMMs.

The efficient use of this valuable natural resource is the ethic of a responsible water steward. Retail agencies throughout the County recognize the need to use existing water supplies efficiently and effectively. The implementation of BMP based efficiency programs makes good economic sense and reflects this responsible stewardship of the region's water sources. All retail water agencies in Orange County are actively implementing BMP based programs; however, not all retail agencies are signatory to the MOU. Most of the cost of implementing these programs is incorporated in MWDOC's rate surcharges. The District actively participates in MWDOC's regional programs, enabling economies of scale, providing a more consistent message of efficiency to the public, and assisting in the acquisition of grant funding for program implementation.

To assist in the implementation of the BMPs throughout Orange County, MWDOC's efforts focus on the following three areas which comply with and extend beyond the basic wholesaler assistance requirements of the DMMs.

Regional Program Implementation – MWDOC develops, obtains funding for, and implements regional BMP programs on behalf of all retail water agencies in Orange County. This approach minimizes confusion to consumers by providing the same programs with the same participation guidelines countywide, which maintains a consistent message to the public to use water efficiently.

Local Program Assistance – When requested, MWDOC assists retail agencies to develop and implement local programs within their individual service areas. This assistance includes collaboration with each retail agency to design a program to fit that agency's local needs, which may include providing staffing, targeting customer classes, acquiring grant funding from a variety of sources, and implementing, marketing, reporting, and evaluating the program. MWDOC provides assistance with a variety of programs including, but not limited to, large landscape programs, conservation public information, school education, conservation pricing, and water waste prohibitions.

Research and Evaluation – An integral component of any water use efficiency program is the research and evaluation of potential and existing programs. Research allows an agency to measure the water savings benefits of a specific program and then compare those benefits to the costs of implementing the program to evaluate its economic feasibility when compared to other efficiency projects or existing or potential sources of supply. Table 39 demonstrates the implementation responsibility between MWDOC, as the wholesale agency and regional program manager, and the District for each of the BMP's.

Table 39 BMP Implementation Responsibility and Regional Programs				
BMP # Efficiency Measure		Applies to:		MWDOC Regional Program
		Retailer	MWDOC as a Wholesaler	
1	Home Water Surveys	√		√
2	Residential Plumbing Fixture Retrofits	75% Saturation goal achieved in 2001		
3	System Water Audits, Leak Detection and Repair	√	(1)	√
4	Metering With Commodity Rates	√	(1)	
5	Large Landscape Conservation Programs	√		√
6	High-Efficiency Washing Machine Rebate Programs	√		√
7	Public Information Programs	√	√	√
8	School Education Programs	√	√	√
9	Commercial, Industrial, and Institutional Programs	√		√
10	Wholesale Agency Assistance Programs		√	√
11	Conservation Pricing	√	√	√
12	Conservation Coordinator	√	√	√
13	Water Waste Prohibition	√		√
14	Residential ULFT Replacement Programs	75% Saturation goal achieved in 2009		

Source: MWDOC 2010 Regional UWMP, Section 4-2

(1) MWDOC does not own or operate a distribution system; water wholesaled by MWDOC is delivered through the MWD distribution system and meters.

6.2 DEMAND MANAGEMENT MEASURES

The CUWCC MOU outlines fourteen DMMs, or BMPs, for the purpose of urban water conservation. These urban water conservation BMPs are designed to reduce long term urban demands. This section discusses the BMPs and efficiency measures. Please note BMP No.10, Wholesale Agency Assistance Programs, does not apply to the District. District BMPs that have been implemented or are on track to be implemented are described here. The District BMP Reports for 2009 and 2010 are provided in Appendix F and G, respectively.

BMP No. 1 – Water Survey Programs for Single-Family Residential and Multi-Family Residential Customers

Water Surveys

In 2001, the District entered into an indoor/outdoor water survey program provided through MWDOC's contracted vendor. Approximately 1,000 customers (37 percent of the District's residential customer base) were offered surveys, and 64 surveys were completed over a two-year period. The indoor survey included: checking for leaks, checking showerhead and aerator flow rates, and checking toilet flow rates. Necessary replacements were recommended by the vendor. The outdoor survey included: checking irrigation system and times, reviewing or developing irrigation schedule, measuring landscaped, and the total irrigation areas.

As a part of the monthly meter reading process, District staff visually checks all water meters for leaks and makes necessary repairs to District's meters. Additionally, District staff respond frequently to customer service orders to check for leaks and provide water conservation information to customers at the time of the home visit.

SmarTimer Rebate Program

In 2005 the District entered into a letter agreement with MWDOC to participate in this regional program. Under the program, residential customers and small commercial properties are eligible to receive a rebate when they purchase and install a new, state-of-the-art, weather-based sprinkler timer which has been shown to save 41 gallons per day per residential installation and to reduce runoff and pollution by 49 percent.

The rebate program was initially funded by a grant from the SWRCB. Since the initial program start, additional funding partners included DWR, the United States Bureau of Reclamation, the Natural Resources Conservation Service, MWD, and the local retail water agencies of Orange County. As a result of the developed funding, MWDOC has been able to provide incentives for the installation of approximately 2,400 residential smart timers and 3,400 commercial smart timers. The District is eligible to receive 1,354 valves over the life of the program. The District will continue its efforts to fulfill the coverage requirements for BMP No. 1.

South County SmartScape Landscape Improvement Incentive Program

MWDOC has obtained grant funding from the SWRCB to implement this program. The purpose of the program is to retrofit existing high water using landscapes with 'fixes' that will reduce the site's outdoor water consumption in single family homes and small commercial properties. Each site, within each of the program's eligible areas, will receive a menu option of retrofit improvements, labeled as Type A, AB, or ABC, indicating which specific set of improvements may be implemented.

The three different types of retrofit improvement designations are summarized as follows.

- Type A – Replacement of an existing conventional "dumb" irrigation timer with a weather-based "smart timer" irrigation controller. Per the program's rules, this is a required step for all participants, with a limit of one controller per site.

- Type AB – Replacement with a weather-base controller and the implementation of specific irrigation distribution system improvements. This may include both front and back yards.
- Type ABC – Replacement with a weather-based controller, and implementation of specific irrigation distribution system improvements, and the replacement of high water-using plants, specifically turf grass with a choice of certain water-efficient landscape improvements from a Program Plant List of California Friendly and native species. The plant replacements are for front yards only.

All sites that choose to participate in this program must receive Retrofit Type A. Depending on the outcome of a pre-installation landscape audit performed by a third party contractor employed by MWDOC, sites may become eligible for Retrofit Types A and B, and/or Types A, B, and C. Participating sites may not receive Type B or C without a smart timer (Type A) installed.

California Friendly Landscape Training (Residential)

The California Friendly Landscape Training provides education to residential homeowners, property managers, and professional landscape contractors on a variety of landscape water efficiency practices they can employ. These classes are hosted by MWDOC and/or the retail agencies to encourage participation across the county. The residential training program consists of either a half-day mini class or individual, topic-specific, four hour classes. The four topics presented include the following.

- Basic Landscape Design
- California Friendly Plants
- Efficiency Irrigation Systems
- Soils, Watering, and Fertilizing

These classes are now available online allowing Orange County residents to learn how to implement these water conservation measures while sitting in the comfort of their own home. The District meets the coverage requirements for BMP No. 1.

BMP No. 2 – Residential Plumbing Retrofit

Using the 2001 *Orange County Saturation Study* as a benchmark, saturation of low-flow showerheads was measured at 67 percent and 60 percent in single and multi-family housing stock, respectively. Today, low flow showerhead saturation is estimated to be more than ninety percent in single and multi-family homes. The District has demonstrated that over 75 percent of both the single family accounts and multi-family units constructed prior to 1992 in the District service area are fitted with low flow showerheads. It is not anticipated that further low flow showerhead distribution or installation activity will occur. The District meets the coverage requirement for BMP No. 2.

BMP No. 3 – System Water Audits, Leak Detection, and Repair

The District records daily production and demand data, by zones, and reads all meters on a monthly basis. All metered sales and other system verifiable uses, e.g., backwash, flush water, and operations and maintenance, are recorded. The unaccounted water loss varies year to year, and is approximately five percent of the total water in the system. The District is meeting the coverage requirement for BMP No. 3.

BMP No. 4 – Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

All of the District's water connections are metered and billed based on commodity rates. The District meets the coverage requirements for BMP No. 4.

BMP No. 5 – Large Landscape Conservation Programs and Incentives

Of the large landscape areas within the District, 100 percent of the dedicated landscape irrigation meters are under the control of homeowner associations. These homeowner associations have instituted significant water conservation practices within the last five years due to their efforts to control water costs which result in lower homeowner association fees. The three largest homeowner associations are participating in the expansion of the use of recycled water to further reduce the costs to their homeowner associations, resulting in effective use of local resources.

The District meets the coverage requirements of BMP No. 5. It will continue to work closely with its large landscape users to effectively use local water resources.

BMP No. 6 – High-Efficiency Washing Machine Rebate Programs

The District participates in the SoCal Water Smart residential rebate program that is sponsored by MWDOC and MWD. This program offers financial incentives to single family and multi-family residential customers through the form of a rebate.

Orange County residents are eligible to receive an \$85 rebate when they purchase a new High Efficiency Clothes Washer (HECW). Rebates are on a first-come, first-served basis, while funds last. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. Machines must have a water factor of 4.0 or less. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility as additional rebates may be available. The District continues to provide information to single family and multi-family residences of the availability of the rebate programs. The District meets the coverage requirements for BMP No. 6.

BMP No. 7 – Public Information Programs

The District maintains a very active public information program to promote and educate customers about water conservation. For the past 16 years, the District has published and forwarded its monthly newsletter, *On Tap*, to all customers. Water conservation is a key component of the text of the newsletter, and an irrigation watering table is provided in the newsletter. Brochures regarding water-wise gardening are made available to all customers. In 2007, the District constructed a demonstration garden consisting of native California drought-resistant plants and utilized artificial turf at its Administration Office.

Each year the District publishes and distributes its Water Quality Report that is required by the California Department of Public Health. Water use efficiency and conservation information is included in the report along with water quality data. The District meets the coverage requirements for BMP No. 7, and will continue to actively promote and educate its customers concerning water conservation.

BMP No. 8 - School Education Programs

BMP No. 8 focuses on the implementation of a school education program to promote water conservation and water conservation-related benefits. The District participates in MWDOC's highly successful and well recognized water education curriculum that has been in existence since 1973.

The School Program features assembly-style presentations that are grade-specific and performed on-site at the schools. The program curriculum is aligned with the science content standards established by the State of California. Since its inception, nearly three million students countywide have been educated through the School Program.

MWDOC has partnered with Discovery Science Center that allowed both organizations, and member agencies like the District, to reach more Orange County students each year and provide them with even greater educational experiences in the areas of water and science. Discovery Science Center currently serves as the School Program administrator, handling all of the program marketing, bookings, and program implementation. According to MWDOC's 2010 Regional UWMP, more than 70,000 students will be educated through the program during the 2010-11 school year. The District meets the coverage requirements for BMP No. 8.

BMP No. 9 – Conservation Programs for Commercial, Industrial and Institutional Accounts

The goal of BMP No. 9 is to identify and rank commercial, industrial, and institutional customers according to use and to establish long-term implementation targets for the replacement of high water using toilets with ULFTs in the CII sector. The District has no industrial accounts within its service area. District commercial accounts, including the institutional category, total less than 100. The District meets the coverage requirements for BMP No. 9.

BMP No. 10 – Wholesale Agency Assistance Program

The District is not a wholesale agency, therefore this BMP does not apply to Trabuco Canyon Water District.

BMP No. 11 – Conservation Pricing

With the rising costs of purchasing, treating, and storing a viable drinking water supply for the District service area, compounded with the need for realistic conservation-based measures to preserve current and future water supplies, the District adopted a Conservation Encouragement Rate Program (CERP) for the determining water rates for both residential and agricultural customers. The CERP rates were designed to accomplish the following goals.

- Encourage water conservation
- Encourage best management watering practices
- Recover the true costs associated with excessive water use, and
- Avoid the need to purchase additional water supply.

Residential CERP

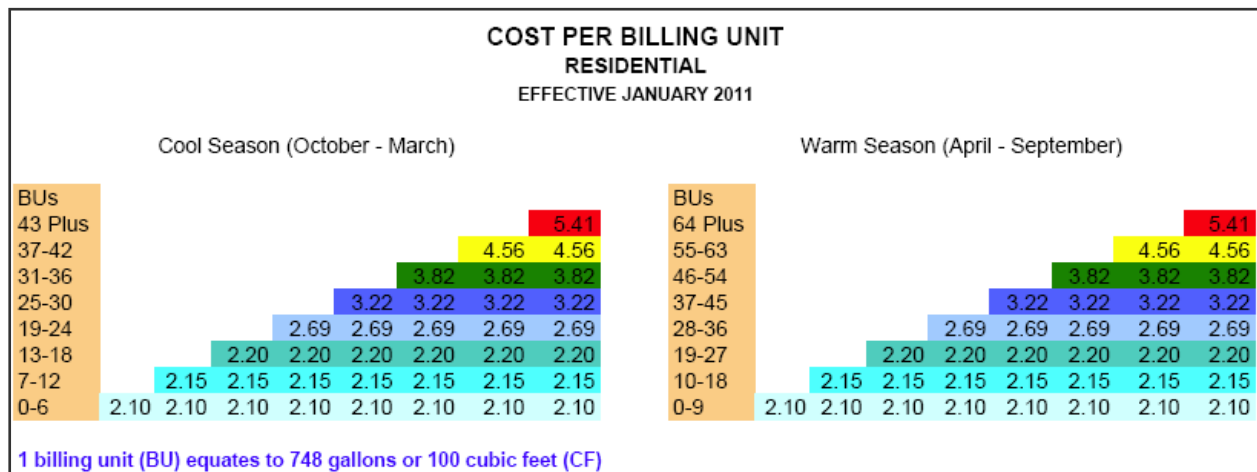
Beginning in January 2007, the District adopted the Residential CERP. It was designed to encourage customers to conserve water, through the implementation of an eight-tiered cool and warm season rate structure. Furthermore, the Residential CERP rates have been adjusted in years 2010 and 2011 in order to reflect the increased costs of providing water to the District's service area. The determining factors

for the CERP rate adjustments are the increasing commodity charges for water and pumping electrical costs.

- Increasing commodity charges for water.**
 In 2010, the District determined it could no longer absorb the increasing commodity costs for purchasing water from MWD.
- Pumping electrical costs.**
 The lowest elevations of the District’s water service area (approximately 985 feet above sea level) are higher than most other service areas for other water purveyors throughout the county. This means the cost of delivering the water to the District’s 1,400 foot service elevation level involves the electrical cost of pumping water to this higher elevation.

The current residential CERP rates are presented on Figure 6.1.

Figure 6.1 Residential Conservation Encouragement Rate Program



Agricultural CERP

Beginning in January 2006, the District adopted the Agricultural CERP. The Agricultural CERP is divided into two rate periods.

- Non-peak months of January through June
- Peak months of July through December

The Agricultural CERP rates are presented in Figure 6.2.

Figure 6.2 Agricultural Conservation Encouragement Rate Program

AGRICULTURAL CERP/TIERED RATES *** (effective January 2011)						
Months	Rate Code	Tier 1 0-30 units	Tier 2 31-60 units	Tier 3 61-90 units	Tier 4 91-150 units	Tier 5 151 + units
January - June	78	\$ 2.35	\$ 3.19	\$ 3.72	\$ 4.25	\$ 4.78
July - December	78	\$ 2.35	\$ 3.36	\$ 4.06	\$ 4.76	\$ 5.48

The District meets the coverage requirements for BMP No. 11.

BMP No. 12 – Water Conservation Coordinator

All retail water agencies in Orange County have designated water conservation coordinators, regardless of signatory status to the MOU. The District's Administration Department consists of one full-time staff member who handles a variety of tasks related to water use efficiency and community information. The District's Water Conservation Coordinator works closely with other District departments, such as Customer Service, Water and Wastewater Operations, as well as MWDOC's Water Use Efficiency staff in order to effectively develop and implement District and regional programs. The District meets the coverage requirements for BMP No. 12

BMP No. 13 – Water Waste Prohibition

A component of the District's Water Conservation Ordinance No. 2008-18 (Ordinance), described in Section 5 and provided in Appendix E, was the prevention of the waste of water at all times. Section 6 of the Ordinance established the *Permanent Water Conservation Requirements – Prohibition Against Waste* (Permanent Provisions). These Permanent Provisions are the Ordinance's water conservation requirements which are effective at all times while the Ordinance is in effect. Copies of the Permanent Provisions are available at the District Office and on the District's website for District customers.

The Permanent Provisions are as follows.

- **Limits on Watering Hours:**
Watering or irrigating of Landscape with potable water is prohibited between the hours of 9:00 a.m. and 6:00 p.m.
- **Limit on Water Duration:**
Watering or irrigating of landscape with potable water, that is not continuously attended, is limited to no more than ten minutes per station, per day.
- **No Watering While Raining:**
Watering or irrigating while raining is expressly prohibited.
- **No Excessive Water Flow or Runoff:**
Watering or irrigation of any landscaped area in a manner that allows excessive flow onto an adjacent hard surface is expressly prohibited.
- **No Washing Down Hard or Paved Surfaces:**
Prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of hand-held bucket or hose equipped with an automatic shut off nozzle.
- **Limits on Washing Vehicles:**
Using water to wash or clean a vehicle is prohibited except by use of hand-held bucket or hose equipped with an automatic shutoff nozzle.

- **Swimming Pools and Spas:**
No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with public health regulations, or upon written recommendation of a pool maintenance repair professional.
- **No Indiscriminate Use:**
No person shall cause or permit the indiscriminate running of water not otherwise prohibited above which is wasteful and without reasonable purpose.
- **Obligation to Fix Leaks or Malfunctions:**
Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape should have reasonably been discovered and corrected is prohibited. If unattended malfunctions are observed, the District may turn off the irrigation to the affected area until such time the property owner can respond to correct.
- **Water Fountains and/or Decorative Water Features:**
Must have a re-circulation water system.
- **Washing of Equipment and Machinery:**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirement with City or County may apply.
- **Cleaning of Structures:**
Prohibited except with a hose equipped with an automatic shutoff nozzle – District notes NPDES requirements with City or County may apply.
- **Drinking Water Served Upon Request in Restaurants:**
Restaurants are only to serve and/or refill water upon request from patrons.

BMP No. 14 – Residential Ultra-Low Flush Toilet Replacement Programs

For nearly 20 years, MWDOC has continuously implemented a regional ULFT Rebate and/or Distribution Program targeting single and multi-family homes in Orange County. Since the end of the Distribution Program in 2004, MWDOC's program has focused solely on providing rebate incentives for retrofitting non-efficient devices with either ULFTs or High Efficiency Toilets (HET), which are toilets that use 1.28 gallons per flush or less. The ULFT portion of this program concluded in June 2009, and over 360,000 ULFTs were replaced in single-family and multi-family homes, with an overall program cumulative savings of approximately 138,500 acre-feet of water. The HET rebate program, which concluded in 2010, has incentivized over 26,601 devices, with an overall program to-date savings of approximately 3,400 acre-feet of water throughout the County. Saturation of ULFTs (and HETs) is currently estimated to be more than 90 percent in single family homes and 80 percent in multi-family homes countywide. The District meets the coverage requirements for BMP No. 14

6.3 EVALUATION OF NON-IMPLEMENTED BMPS

The District has implemented all of the DMMs as described above.

APPENDIX A – 2010 UWMP Checklist

Trabuco Canyon Water District
Appendix A
DWR 2010 Urban Water Management Plan Checklist

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.2
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.3
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Appendix C
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Section 1.3; Appendix C
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.2; Appendix C
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Section 1.3; Appendix C
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix C
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 3.3; Appendix C & E

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 1.3; Appendix C
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 1.3; Appendix C
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.2.2
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Section 2.2.1; Table 2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.1; Table 2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2.1
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 3.1; Tables 3, 4, & 5;
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Section 3.3; Appendix C

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		For 2015 UWMP
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.2; Tables 6 through 10 and 13
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.2.4; Table 15
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 3.2.1; Table 11
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 4; Table 16
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Section 4.2
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Section 4.2; Management Plan in e-version of Appendix D
16	Describe the groundwater basin.	10631(b)(2)		Section 4.2

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Section 4.2, Appendix D
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 4.2
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 4.2
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 4.2; Table 18
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 4.2; Table 19
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.3; Table 20
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 4.6; Table 26
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 4.5
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 4.5.1; Tables 21 & 22

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 4.5.1; Table 21
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 4.5.1;
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 4.5.2; Table 23
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 4.5.2; Tables 23 & 24
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 4.5.3; Table 25
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 4.5.3; Table 25
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING ^b				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 4.6; Table 26
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 5.1 & 5.2
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 5.1.1; Table 27
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50 percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.3; Table 35

No.	UWMP requirement ³	Calif. Water Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.2.3; Table 31
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.3; Table 36-37
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.3.3; Table 36
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.3.4; Table 37
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.3.5; Table 38
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.3.8
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix E
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.3.6
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Section 5.1.2; Table 28

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 5.2; Tables 29 through 34
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6; Table 39
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 6
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 6
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	Section 6.3
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Appendices G and H

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

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

APPENDIX B – References

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_____, *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use*. October 1, 2010.

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_____, Data and information provided by Harvey de la Torre, Lee Jacobi, Warren Greco, and Joe Berg through phone calls and emails. December 2010 through May 2011.

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_____, *Notice of Preparation of Draft Environmental Impact Report* for Robinson Ranch. April 2009.

Trabuco Canyon Water District, *Water, Wastewater, and Reclaimed Water Master Plan*, prepared by Montgomery Watson. December 1999.

_____, *Trabuco Canyon Watershed Sanitary Survey*, prepared by Karen E Johnson, Water Resources Planning and WQTC. May 2011.

APPENDIX C – Public Participation and Plan Adoption Materials

STAFF MEMBERS

Don Chadd, General Manager
Hector Ruiz, District Engineer
Teresa Teichman, District Secretary
Carl Schoonover, District Treasurer



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April 15, 2011

Ms. Kathleen Haton
Director of Development Services
City of Rancho Santa Margarita
22112 El Paseo
Rancho Santa Margarita, CA 92688

Re: Trabuco Canyon Water District 2010 Urban Water Management Plan Update

Dear Ms. Haton:

The District is in the process of preparing our 2010 Urban Water Management Plan (UWMP) in accordance with the California Water Management Planning Act (Act) of 1983, as amended. The Act requires water suppliers to develop an UWMP every five years in years ending in zero and five.

Recent amendments to the Act require providing a 60-day notice to cities and the county in which we provide water service. This letter serves as that notice. We anticipate holding a public hearing on Wednesday, June 15, 2011, to receive comments and adopt this UWMP. If you have any questions or comments regarding the preparation of this UWMP please feel free to contact the District Engineer, Mr. Hector Ruiz, or myself at (949) 858-0277.

Sincerely,

A handwritten signature in blue ink, appearing to read "MP", written over a horizontal line.

Michael Perea
Special Projects Manager

32003 Dove Canyon Drive, Trabuco Canyon, CA 92679 • 949/858-0277 • Fax: 949/858-3025
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Teresa Teichman, District Secretary
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April 15, 2011

Ms. Gayle Ackerman
Planning Director
City of Lake Forest
25550 Commercentre Drive, Suite 100
Lake Forest, CA 92630

Re: Trabuco Canyon Water District 2010 Urban Water Management Plan Update

Dear Ms. Ackerman:

The District is in the process of preparing our 2010 Urban Water Management Plan (UWMP) in accordance with the California Water Management Planning Act (Act) of 1983, as amended. The Act requires water suppliers to develop an UWMP every five years in years ending in zero and five.

Recent amendments to the Act require providing a 60-day notice to cities and the county in which we provide water service. This letter serves as that notice. We anticipate holding a public hearing on Wednesday, June 15, 2011, to receive comments and adopt this UWMP. If you have any questions or comments regarding the preparation of this UWMP please feel free to contact the District Engineer, Mr. Hector Ruiz, or myself at (949) 858-0277.

Sincerely,

A handwritten signature in blue ink, appearing to read "MP", is written above the name Michael Perea.

Michael Perea
Special Projects Manager

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Sharon E. Smith, Secretary/Treasurer



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April 15, 2011

Mr. Rick LeFeuvre
Planning Director
County of Orange, OC Public Works
P.O. Box 4048
Santa Ana, CA 92702-4048

Re: Trabuco Canyon Water District 2010 Urban Water Management Plan Update

Dear Mr. LeFeuvre:

The District is in the process of preparing our 2010 Urban Water Management Plan (UWMP) in accordance with the California Water Management Planning Act (Act) of 1983, as amended. The Act requires water suppliers to develop an UWMP every five years in years ending in zero and five.

Recent amendments to the Act require providing a 60-day notice to cities and the county in which we provide water service. This letter serves as that notice. We anticipate holding a public hearing on Wednesday, June 15, 2011, to receive comments and adopt this UWMP. If you have any questions or comments regarding the preparation of this UWMP please feel free to contact the District Engineer, Mr. Hector Ruiz, or myself at (949) 858-0277.

Sincerely,

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Michael Perea
Special Projects Manager

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BOARD OF DIRECTORS

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Edward Mandich, Vice President
Matthew Disston, Director
James Haselton, Director
Glenn Acosta, Director

May 20, 2011

VIA FACSIMILE (714) 347-2702 AND
CERTIFIED MAIL, RETRUN RECEIPT REQUESTED
FIRST CLASS MAIL

Saddleback Valley News
625 North Grand Avenue
Santa Ana, California 92701

Attention: Adolpho Rios, Legal Department

RE: Publication of Notice of Public Hearing
2010 Urban Water Management Plan

Gentlemen:

Please publish the enclosed Notice of Public Hearing regarding 2010 Urban Water Management Plan once a week for two successive weeks. The first publication needs to occur by May 27, 2011; the second publication needs to occur by June 3, 2011.

Please forward the proof of publication along with the invoice for your services to my attention at the District office.

Should you have questions regarding the Notice of Public Hearing regarding the 2010 Urban Water Management Plan, please contact me at your earliest convenience. Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Teresa Teichman", written over a horizontal line.

Teresa Teichman
Secretary to the Board of Directors

Enc.

32003 Dove Canyon Drive, Trabuco Canyon, CA 92679 • 949/858-0277 • Fax: 949/858-3025
www.tcwd.ca.gov

**NOTICE OF PUBLIC HEARING OF THE
TRABUCO CANYON WATER DISTRICT TO
RECEIVE PUBLIC COMMENTS REGARDING
ITS 2010 URBAN WATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN, pursuant to Water Code Section 10642, that the Trabuco Canyon Water District invites the community to attend a public hearing regarding the adoption of its 2010 Urban Water Management Plan.

Beginning June 1, 2011, the draft Plan will be available for public inspection at the District office during the normal business hours of 7:00 a.m. to 4:00 p.m. The draft Plan Update will be discussed and public comments will be received at the following time and place.

WEDNESDAY, JUNE 15, 2011

At 7:00 PM

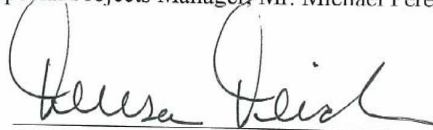
(or as soon thereafter as the Agenda permits)

Trabuco Canyon Water District

32003 Dove Canyon Drive

Trabuco Canyon, California 92679

Attendance is open to the general public. For more information, or if you would like assistance in presenting your comments to the Board at the public hearing, please contact the District Engineer, Mr. Hector Ruiz, or the District Special Projects Manager, Mr. Michael Perea, at (949) 858-0277.



By: Teresa Teichman
Secretary to the Board of Directors

AFFIDAVIT OF PUBLICATION

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

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the Saddleback Valley News, a newspaper that has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, on December 7, 1976, Case No. A-86742 in and for the South Orange County Judicial District, County of Orange, State of California; that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

May 27, June 3, 2011

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

Executed at Santa Ana, Orange County, California, on

Date June 3, 2011

Adolf _____
Pru

Signature

**Saddleback Valley News
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-7000 ext. 3002**

PROOF OF PUBLICATION

NOTICE OF PUBLIC HEARING OF THE TRABUCO CANYON WATER DISTRICT TO RECEIVE PUBLIC COMMENTS REGARDING ITS 2010 URBAN WATER MANAGEMENT PLAN

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At 7:00 PM
(or as soon thereafter as the Agenda permits)
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Trabuco Canyon, California 92678

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By: *ja/ Teresa* Teichman
Secretary to the Board of Directors
Publish: Saddleback Valley News May 27, June 3, 2011
9370841

Trabuco Canyon Water District

2010 Urban Water Management Plan

Board of Directors Meeting
June 15, 2011



UWMP Requirements

Comply with Urban Water Management Planning Act and amendments

Identify SBx7-7 conservation targets

Must have approved UWMP for water management grants or loans

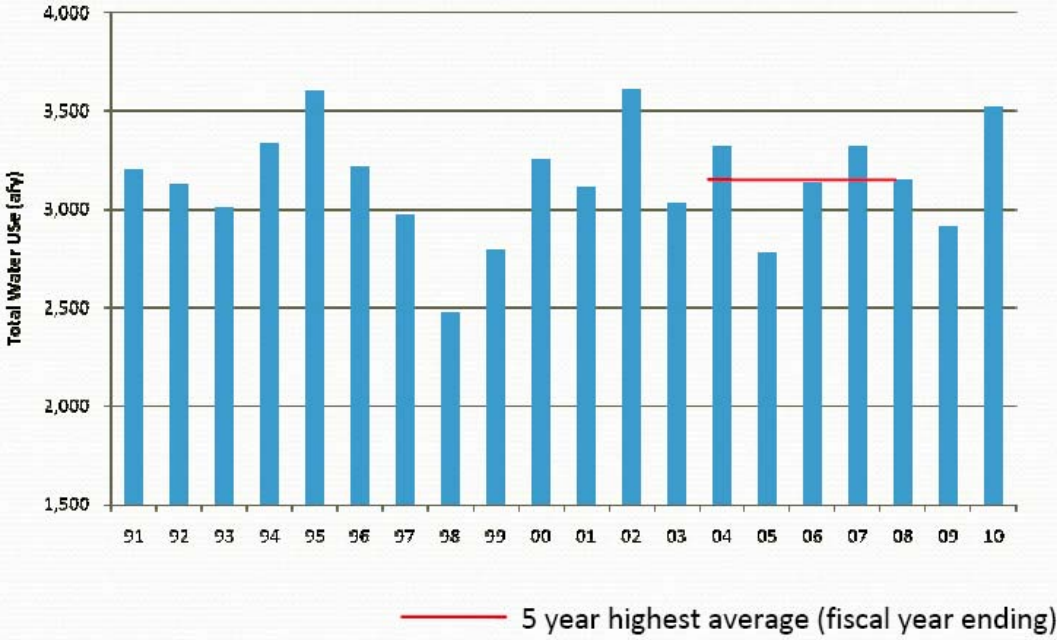
Update every 5 years

UWMP Major Components

- Water Demands including SBx7-7 Targets
- Supplies and Supply Reliability
- Conservation Measures
- Implementation Plan and Financial Impacts

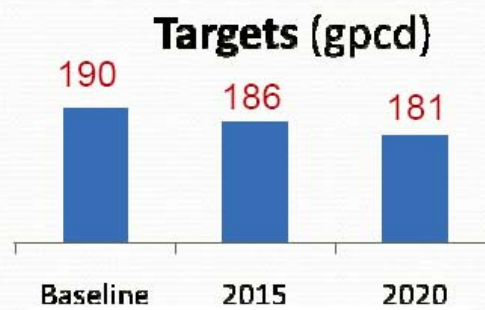
Baseline Demands

Reflect Highest Use for a Recent 5 Year Period: 190 gpcd

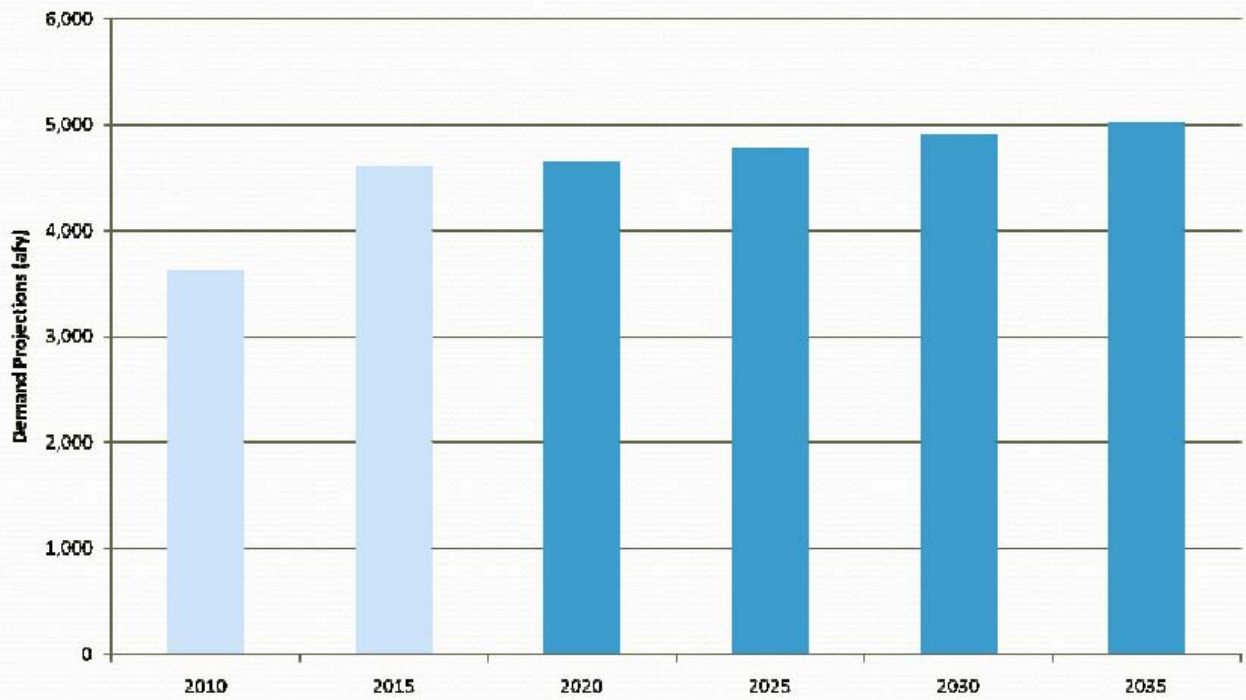


Water Demand Targets (SBx7-7)

- Methodology: Simple per capita reduction
- By 2020, TCWD is required to meet 95% of baseline
- TCWD is a participant in MWDOC's Regional Alliance
 - If the Alliance meets its target, the District is considered compliant



Water Demand Projections



Projected Supplies

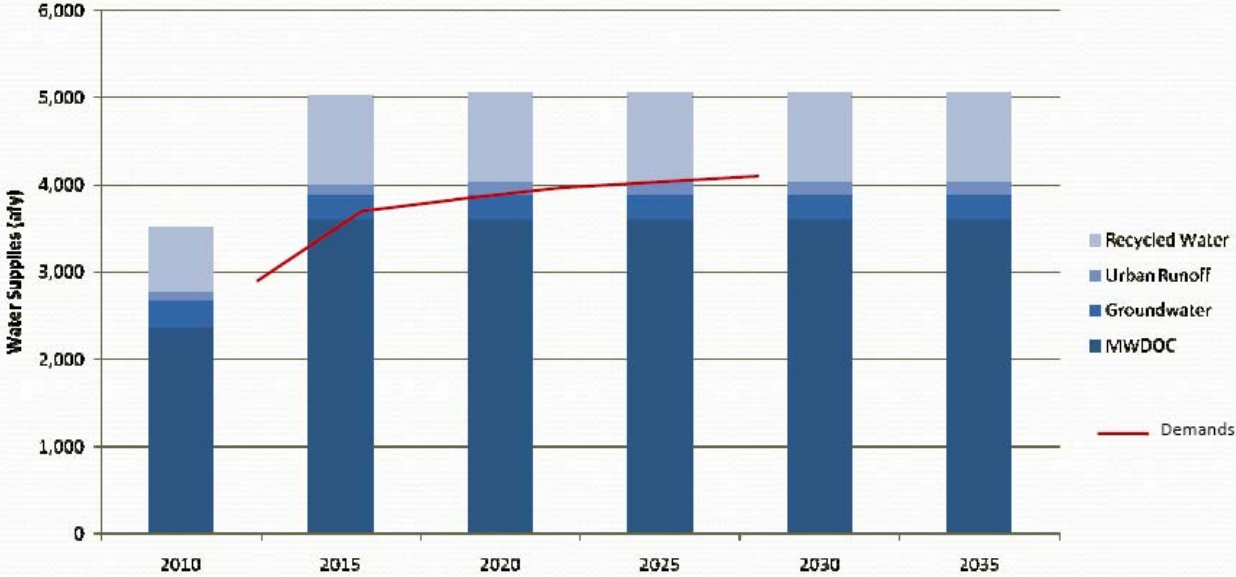
Imported MWD
Purchases: 3,600 AF/Y
plus

Groundwater: 279 AF/Y
from Arroyo Trabuco
Aquifer

Recycled Water:
850 to 1,035 AF/Y

Recycled Urban
Runoff: 150 AF/Y

District Supplies are Highly Reliable Except for Groundwater



*MWD has assured MWDOC that future supplies are 100% reliable (but at a cost)

Water Use Reduction Implementation Plan

How do we go from 190 gpcd to 181 gpcd by 2020 ?

1. Increase Use of Recycled Water.

Convert remaining sections of potable water landscape irrigation systems to recycled water. Require new developments to use Recycled Water.

2. Water Conservation Program Permanent Provisions.

Maintain existing TCWD Ordinance, Conservation Program, and Education.

3. Passive and Active Conservation Activities.

Continue to implement demand management measures.

Item	Best Management Practices (Demand Management Measures)		
A	Water Survey Programs for Single Family and Multi-family Residential Customers	★	
B	Residential Plumbing Fixture Retrofits	★	
C	System Water Audits, Leak Detection and Repair	★	
D	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections	★	
E	Large Landscape Conservation Programs and Incentives	★	
F	High-Efficiency Washing Machine Rebates	★	
G	Public Information Programs	★	
H	School Education Programs	★	
I	Commercial, Industrial, and Institutional Programs	★	
J	Wholesale Agency Assistance Programs	NA	
K	Conservation Pricing	★	
L	Water Conservation Coordinator	★	
M	Water Waste Prohibition	★	
N	Residential ULFT Replacement Programs/Water-Sense Specification Toilets	★	

Next UWMP Steps

- Conduct Public Hearing for Presentation of UWMP
- Adopt Resolution 2011-1149 (Adopting 2010 UWMP)
- UWMP due to DWR on July 1, 2011
- Submit to State Library, Cities, County, etc. within 30 days
- Respond to DWR review comments
- DWR approves UWMP

RESOLUTION NO. 2011-1149

**RESOLUTION OF THE BOARD OF DIRECTORS
OF THE TRABUCO CANYON WATER DISTRICT
ADOPTING 2010 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the California Legislature enacted Assembly Bill 797 during the 1983-84 Regular Session of the California Legislature (Water Code Section 10610, et. seq., known as the Urban Water Management Planning Act,) 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 Trabuco Canyon Water District is an urban supplier of water providing water to a population over 10,000; and

WHEREAS, Assembly Bill 797 requires that said Plan be periodically reviewed at least once every five years and that the urban water supplier shall make any amendments or changes to its Plan which are indicated by the review; and

WHEREAS, the Plan must be adopted by July 1, 2010, after public review and hearing, and filed with the California Department of Water Resources within thirty (30) days of adoption; and

WHEREAS, the Trabuco Canyon Water District has therefore, prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the Board of Directors on June 15, 2011; and

WHEREAS, the Trabuco Canyon Water District did prepare and shall file said Plan with the California Department of Water Resources.

NOW, THEREFORE, the Board of Directors of Trabuco Canyon Water District DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1. The 2010 Urban Water Management Plan Update attached hereto is adopted as the 2005 Urban Water Management Plan Update of the Trabuco Canyon Water District pursuant to Section 10610, et. seq. of the Water Code.

Section 2. The Secretary of the Trabuco Canyon Water District is directed to file copies of the 2010 Urban Water Management Plan Update with the Department of Water Resources of the State of California and the California State Library pursuant to Water Code Section 10644 within thirty (30) days after its adoption.

ADOPTED, SIGNED AND APPROVED this 15th day of June, 2011.

TRABUCO CANYON WATER DISTRICT

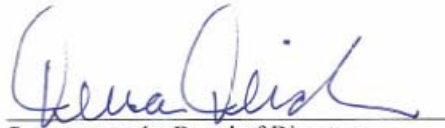
By: Muhammad F. Schramm
President/Vice President

By: Abdullah Al-Hadi
District Board Secretary

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Teresa Teichman, Secretary of the Board of Directors of the Trabuco Canyon Water District do hereby certify that the foregoing is a full, true and correct copy of Resolution No. 2011-1149 of said Board and that the same has not been amended or repealed.

Dated this 15th day of June 2011.




Secretary to the Board of Directors
of the Trabuco Canyon Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Teresa Teichman, Secretary of the Board of Directors of the Trabuco Canyon Water District, do hereby certify that the foregoing resolution was duly adopted by the Board of Directors at a meeting of said Board held on the 15th day of June, 2011, and that it was so adopted by the following vote:

AYES: Safranski, Mandich, Disston, Haselton, Acosta
NOES: None
ABSTAIN: None
ABSENT: None



Secretary to the Board of Directors
of the Trabuco Canyon Water District

APPENDIX D – Groundwater Basin Information

San Juan Valley Groundwater Basin

- Groundwater Basin Number: 9-01
- County: Orange
- Surface Area: 16,700 acres (26 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies the San Juan Valley and several tributary valleys in southern Orange County. The basin is bounded on the west by the Pacific Ocean and otherwise by Tertiary semi-permeable marine deposits. San Juan Creek drains the San Juan Valley and several other creeks drain valleys tributary to the San Juan. Average annual precipitation ranges from 11 to 15 inches.

Hydrogeologic Information

Water Bearing Formations

The primary water-bearing unit within the San Juan Valley Groundwater Basin is Quaternary alluvium (DWR 1972; 1988). This alluvium ranges from a heterogeneous mixture of sand, silt, and gravel in the eastern portion of the basin, to coarse sand near the center, to fine-grained lagoonal sediments in the western portion of the basin (DWR 1972). Thickness of the alluvium averages about 65 feet and may reach more than 125 feet (DWR 1972). Specific yield of the alluvium is estimated to average about 13 percent and range from 3 to 22 percent (DWR 1988). Wells typically yield from 450 to 1,000 gpm (CDM 1987). Sand layers of the Tertiary Santiago Formation may be water bearing within the region and beneath the basin (DWR 1972), and minor amounts of water are extracted from fractured basement rock beneath the basin (DWR 1988).

Restrictive Structures

At the confluence of San Juan Creek and Canada Chiquita, near the middle portion of the basin, the Cristianitos fault forms a barrier to subsurface outflow (DWR 1972; NBS Lowry 1994). Forester, Mission Viejo and Aliso faults are not known to form barriers to groundwater flow, but they are mapped as crossing the basin (DWR 1988).

Recharge Areas

Recharge of the basin is from flow in San Juan Creek, Oso Creek, and Arroyo Trabuco and precipitation to the valley floor. Water from springs flows directly from Hot Spring Canyon into San Juan Creek, adding to recharge (DWR 1972).

Groundwater Level Trends

Groundwater levels in 1987 were similar to water levels in 1952 (DWR 1988). Hydrographs show seasonal cycles with average declines related to drought cycles that recover during more plentiful seasons (DWR 1988). Groundwater flows southwest toward the Pacific Ocean (DWR 1988).

Last update 2/27/04

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity has been estimated to be 90,000 af (DWR 1972; 1975; 1988) or 63,220 af (NBS/Lowry (1994).

Groundwater in Storage. Unknown.

Groundwater Budget (Type A)

A study by NBS Lowry (1994) investigated and modeled the groundwater basin for 1979 through 1990. They determined a mean pumpage of 5,621 af/year and a mean subsurface inflow of 2,246 af/year. Average subsurface outflow to the ocean is estimated to be about 450 af/yr (DWR 1972).

Groundwater Quality

Characterization. Groundwater mineral content is variable in this basin (DWR 1972; CDM 1987). Groundwater in the basin typically has calcium bicarbonate or bicarbonate-sulfate character below the upper reaches of the valleys, and calcium-sodium sulfate or sulfate-chloride near the coast (DWR 1988). In general, TDS content in groundwater increases from below 500 mg/L in the upper reaches of the valleys to near 2,000 mg/L near the coast (NBS Lowry 1994). TDS content of water from 3 public supply wells averages 760 mg/L and ranges from 430 mg/L to 1,250 mg/L.

Impairments. Groundwater in the western part of the basin has high TDS content, and water coming from springs in Thermal Canyon has high fluorine content (DWR 1972).

Water Quality in Public Supply Wells

Constituent Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
Inorganics – Primary	3	0
Radiological	3	0
Nitrates	3	0
Pesticides	3	1
VOCs and SVOCs	3	0
Inorganics – Secondary	3	3

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Last update 2/27/04

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 450-1,000 gal/min (17 wells; CDM 1987)	Average:
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range: 200 - 250 ft (DWR 1967)	Average:

Active Monitoring Data

Agency	Parameter	Number of wells / measurement frequency
Department of Health Services and cooperators	Title 22 water quality	8/annually

Basin Management

Groundwater management: The San Juan Basin Authority.

Water agencies

Public	San Juan Basin Authority, Moulton Niguel Water District, Capistrano Beach County Water District, Capistrano Valley County Water District, Orange County Waterworks District No. 4, Santa Margarita Water District, Santa Ana Mountains Water District, El Toro Water District
Private	

References Cited

- San Juan Basin Authority (SJBA). 1971. *Groundwater Storage Program Feasibility Study and Pilot Project Grant Application*. Orange County, California. San Juan Basin Authority. 50 p.
- California Department of Water Resources (DWR). 1967. *Ground Water Occurrence and Quality, San Diego Region*. Bulletin 106-2. 233 p.
- _____. 1972. *Planned Utilization of Water Resources in the San Juan Creek Basin Area*. Bulletin No. 104-7. 210 p.
- _____. 1975. *California's Ground Water*. Bulletin 118. 135 p.
- _____. 1988. *San Diego Region Ground Water Studies, Phase IV*. Southern District Memorandum Report. 99 p.
- Camp Dresser and McKeel, Inc. (CDM). 1987. *Task 10- Groundwater Management Plan*.
- NBS/Lowry Engineers and Planners. 1994. *San Juan Basin Groundwater Management and Facility Plan*. Facility Plan.

Additional References

- Rogers, Thomas H. 1973. *Geologic Map of California, Santa Ana Sheet*. California Division of Mines and Geology. Olaf P. Jenkins Edition. Scale 1:250,000. 1 sheet.
- Moulton Niguel Water District. 2000. *2000 Water Quality Report*. 6 p.

Last update 2/27/04

Errata

Substantive changes made to the basin description will be noted here.

Last update 2/27/04

APPENDIX E – Water Conservation Ordinance

ORDINANCE NO. 2008-18

ORDINANCE OF THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT MAKING FINDINGS, ADOPTING A WATER CONSERVATION PROGRAM SUPERSEDING ORDINANCE NO. 91-14 AND TAKING RELATED ACTIONS

THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT DOES ORDAIN AS FOLLOWS:

Section I: Authority:

This Ordinance No. 2008-18 (“Ordinance”) is enacted pursuant to Sections 30000 *et seq.*, including, but not limited to, Sections 31026-31029, inclusive, and Sections 375–377, inclusive, of the Water Code of the State of California. The Trabuco Canyon Water District (TCWD or DISTRICT) may establish additional guidelines, penalties, cost recovery systems, enforcement procedures and other rules and regulations to assist in the conservation of water. TCWD has the power to restrict the use of water supplied to TCWD customers during any emergency caused by drought, or other threatened or existing water shortage, and to prohibit the wastage of water supplied to TCWD customers, or the use of water, during such periods. TCWD may prohibit use of such water during such periods for specific uses which TCWD may, from time to time, find to be nonessential.

Section II. Findings and Determinations:

The Board hereby finds and determines as follows:

- a. A reliable minimum supply of potable water is essential to the public health, safety and welfare of the people and economy of the southern California region.
- b. Southern California is a semi-arid region and is largely dependent upon imported water supplies. A growing population, climate change, environmental concerns, and other factors in other parts of the State and western United States, make the region highly susceptible to water supply reliability issues and situations.
- c. Careful water management, which includes active water conservation measures not only in times of drought but at all times, is essential to ensure a reliable minimum supply of water to meet current and future water supply needs.
- d. Trabuco Canyon Water District is a county water district organized and operating pursuant to the laws of the State of California and which has, as one of its functions, the authority to provide for the provision of water and water services to its customers.
- e. Article X, Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use, waste or unreasonable use or unreasonable method of use of water be prevented, and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof.

- f. California Water Code Section 375 authorizes public agency water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.
- g. California Water Code Sections 31026-31029, inclusive, authorize county water districts to provide for restrictions and limitations on use of water during drought and/or threatened or existing water shortage situations.
- h. TCWD has undertaken various efforts, planning efforts and facilities projects to improve and support local water supplies, water re-use and imported water facilities and arrangements in order to meet water demands of TCWD's current and future customers; however, circumstances do occur, and may occur in the future, which necessitate planning and measures to address water shortages on state-wide and local levels.
- i. The adoption and enforcement of a water conservation and supply shortage program is necessary to manage the District's potable water supply in the short and long-term and to avoid or minimize the effects of drought and shortage within the District. Such program is essential to ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare.
- j. The protection, conservation, and management of local and imported water supplies are one of the main functions of TCWD as a public agency water provider. The Board of Directors of TCWD, based on the actions mandated by the Governor of the State of California, the Metropolitan Water District of Southern California (MWD) and the Municipal Water District of Orange County (MWDOC) and a review of the factual circumstances, has determined the necessity of adopting and implementing a comprehensive, mandatory water conservation plan to reduce overall District usage to meet mandated levels and have declared a water shortage emergency within the State of California.
- k. It is known that the public agencies supplying water to TCWD may mandate water rationing to the District because of limited supplies.
- l. It is known that the distribution or storage facilities of public agencies supplying water to TCWD may become inadequate to meet demands.
- m. That due to circumstances or events beyond the control of TCWD or other public agencies, a major failure of the supply, storage and distribution facilities of the public agencies supplying water to TCWD may occur.

Section III. Declaration of Purpose and Intent:

- a. The purpose of this Ordinance is to establish a water conservation and supply shortage program in order to (i) reduce water consumption within the District through conservation, (ii) allow for effective water supply planning, (iii) assure reasonable and beneficial use of water, (iv) prevent waste of water at all times, and (v) maximize the efficient use of water within the District to avoid and minimize the effect(s) and hardship of water shortage(s) to the greatest extent possible.
- b. This Ordinance establishes permanent water conservation standards intended to alter behavior related to water use efficiency for non-shortage conditions and further establishes three levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergencies, with increasing restrictions on water use in

response to worsening drought or emergency conditions and decreasing supplies as determined by the Board.

Section IV. Definitions:

- a. The following words and phrases whenever used in this Ordinance shall have the meaning defined in this section:
1. “Billing Unit” means the unit of water used to apply water rates for purposes of calculating water charges for a person’s water usage and equals one hundred (100) cubic feet or seven hundred forty-eight (748) gallons of water.
 2. “Board” means the Board of Directors of the District.
 3. “District” or “TCWD” means the Trabuco Canyon Water District, a county water district organized and operating pursuant to the laws of the State.
 4. “Effective Date” means the date this Ordinance becomes effective.
 5. “Efficiency Standard” means the percentage of water delivered to plant roots that is used beneficially.
 6. “Enforcing attorney” means TCWD’s General Legal Counsel, acting as counsel to the District and his/her/their designee(s), or the Orange County District Attorney, which counsel is authorized to take enforcement action as set forth herein.
 7. “Impervious surface” means a constructed or modified surface that cannot effectively infiltrate rainfall. The term includes, but is not limited to, sidewalks, driveways, parking lots, v-ditches, gutters and roadways.
 8. “Landscape Irrigation System” means an irrigation system which is used for watering landscape, greenbelts and similar which may include pipes, hoses, spray heads, or sprinkling devices that are operated by hand or through an automated system.
 9. “Large Landscape Areas” means a lawn, greenbelt, landscape, or other vegetated area, or combination thereof, equal to more than one (1) acre of irrigable land.
 10. “Major Water Users” means those District customers within any specific customer classification which are using or consuming more than the allocated billing units for that classification.
 11. “Non-essential water use” means the application or usage of water for functions or additional activities which do not have any health or safety impacts, are not required by regulation, and are not part of the core function or business process at a site.
 12. “Ordinance” means this Ordinance No. 2008-18 as adopted, and as such may be amended by the District from time to time.
 13. “Person” means any natural person, property owner, renter, or lessee, as well as any corporation, partnership, government entity or subdivision, trust, estate, cooperative association, homeowners’ association, joint venture, business entity, or other similar

entity, or the property management company, property manager, agent, employee or representative of any of the above.

14. “Potable Water” means water which is suitable for drinking.
15. “Properly programmed” refers to a timer based, weather-based, and/or sensor-based irrigation controller that has been programmed according to the manufacturer’s instructions and site-specific conditions.
16. “Quasi-Public Entity” means an entity, other than a governmental agency, whether characterized by statute as a public corporation, public instrumentality, or otherwise, that is expressly created by statute for the purpose of administration of a State or local function.
17. “Reclaimed Water” means non-potable water which has been treated at a wastewater treatment facility and is available for irrigation use.
18. “Recycled Water” means non-potable water collected by the District from dry season water flow or storm water flow and is available for irrigation use.
19. “Sensor-based irrigation controller” means an irrigation controller that operates based on input received from any combination of sensors, such as rain, solar radiation, and soil moisture sensor, installed within and/or around the irrigated landscape area.
20. “Single Pass Cooling Systems” means equipment where water is circulated only once to cool systems and/or equipment before being disposed of.
21. “State” means the State of California.
22. “Stormwater drainage system” means any street, street gutter, sidewalk, alleyway, channel, storm drain, constructed drain, lined diversion structure, wash area, inlet, outlet or other facility, which is a part of or tributary to the county-wide stormwater runoff system and owned, operated, maintained or controlled by the County of Orange, the Orange County Flood Control District or any NPDES permit co-permittee city, and used for the purpose of collecting, storing, transporting, or disposing of stormwater.
23. “Timer Based Irrigation Controller” means an irrigation controller that is adjustable by day, date, and time per irrigation station.
24. “Urban runoff” means all flows in the stormwater drainage system and consists of stormwater and non-stormwater flows.
25. “Water Waste” means uses of water which are prohibited or limited, going beyond the purpose of necessary or intended use, including area runoff, and which could reasonably be prevented.
26. “Water Conservation Coordinator” is the District’s General Manager or his/her designee(s) or such other officer(s) or employee(s) of the District as the District shall direct.

27. “Water Quality Regulations” are the storm water regulations as defined by the respective jurisdiction of the County of Orange, the Orange County Flood Control District or any NPDES permit co-permittee city.
28. “Weather-based irrigation controller” means an irrigation controller that operates based on evapotranspiration rates and historic and/or real-time weather data.

Section V. Application:

- a. The provisions of this Ordinance apply to any person in the use of any Potable Water provided by the District.
- b. The provisions of this Ordinance shall apply within the District’s boundaries and to District customers.
- c. The provisions of this Ordinance do not apply to uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services.
- d. The provisions of this Ordinance do not apply to the use of Reclaimed Water or Recycled Water, with the exception of Section VI(a).
- e. This Ordinance is intended solely to further the conservation of water. It is not intended to implement any provision of federal, State, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff. This Ordinance shall not act to repeal, supersede or amend any federal, State or local law, ordinance or regulation relating to protection of water quality or control of drainage or runoff (including, but not limited to, any and all NPDES permits or requirements which may be applicable in such instance) or exempt any person or party from compliance therewith.

Section VI: Permanent Water Conservation Requirements – Prohibition Against Waste:

The following water conservation requirements shall be effective at all times while this Ordinance is in effect (unless otherwise specifically determined and directed by the Board). Violations of this section shall be considered waste and an unreasonable use of water.

- a. Limits on Watering Hours: Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 9:00 a.m. and 6:00 p.m. Pacific Standard Time on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
- b. Limit on Watering Duration: Watering or irrigating of lawn, landscape or other vegetated area with potable water using a Landscape Irrigation System or a watering device that is not continuously attended is limited to no more than ten (10) minutes watering per station, per day. This subsection does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard.

- c. **No Watering While Raining:** No person shall allow lawns, groundcover, shrubbery, other landscape material, or open ground, to be watered at any time while it is raining. Automatic irrigation controllers may be turned off manually, or connected to a rain shutoff device. Effective July 1, 2010, all irrigation controllers associated with dedicated landscape meters shall have a rain shutoff device which overrides the program in the event of rainfall.
- d. **No Excessive Water Flow or Runoff:** Watering or irrigating of any lawn, landscape or other vegetated area in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, parking lot, driveway, street, alley, gutter or ditch is prohibited.
- e. **No Washing Down Hard or Paved Surfaces:** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device or a low-volume, high-pressure cleaning machine equipped to recycle water used by such machine(s).
- f. **Obligation to Fix Leaks, Breaks or Malfunctions:** Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected is prohibited. For irrigation applications, if unattended malfunctions are observed to be causing excessive loss of water, the District may, at its sole discretion, turn off the irrigation to the affected area until such time the property owner can respond to correct the malfunction.
- g. **Re-circulating Water Required for Water Fountains and Decorative Water Features:** Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.
- h. **Limits on Washing Vehicles:** Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This subsection does not apply to any commercial car washing facility.
- i. **Drinking Water Served Upon Request Only:** Eating or drinking establishments, including but not limited to a restaurant, hotel, cafe, cafeteria, bar, club or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.
- j. **Commercial Lodging Establishments Must Provide Option to Not Launder Linen Daily:** Hotels, motels and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments shall prominently display notice of this option in each bathroom using clear and easily understood language. Commercial visitor-serving facilities must also ensure that such facility displays, in places visible to all customers, placards or decals approved by the District, promoting public awareness of the need for water conservation.
- k. **No Installation of Single Pass Cooling Systems:** Installation of single pass cooling systems is prohibited in buildings applying for new water service from the District.

- l. No Installation of Non-re-circulating Commercial Car Wash and Laundry Systems: Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.
- m. Commercial Car Washes. Commercial car wash facilities shall not permit the washing of any boat or vehicle in such facility or on its premises, other than by the following methods:
- i. Use of mechanical automatic car wash facilities utilizing water recycling equipment;
 - ii. Use of a hose that operates on a timer for limited time periods and shuts off automatically at the expiration of the time period;
 - iii. Use of a hose equipped with an automatic shutoff nozzle; and/or
 - iv. Use of bucket and hand washing.
- (1) All wash/rinse water must be captured and recycled or discharged into the sanitary sewer system through an appropriate treatment system, after obtaining a special discharge permit from the appropriate wastewater Authority.
- (2) All new commercial conveyor car wash facilities shall be equipped with a water recycling system.
- n. Washing of Equipment and Machinery: No person shall use a water hose to wash any type of equipment or machinery, or any portion thereof, unless the hose is equipped with an automatic shutoff nozzle.

THE DISTRICT NOTES THAT APPLICABLE NPDES REQUIREMENTS INCLUDE:

All wash water from such washing/cleaning activity must be prevented from discharging to the stormwater drainage system. All wash water from such washing/cleaning containing chemicals shall be discharged into the sanitary sewer system through an appropriate treatment system. Any person discharging water containing chemicals is required to first obtain a special discharge permit from the South Orange County Wastewater Authority before such water can be discharged to the sanitary sewer.

- o. Cleaning of Structures: No person shall use water through a hose, including pressure-washing, to clean the exterior of any building or structure unless such hose is equipped with an automatic shutoff nozzle.

THE DISTRICT NOTES THAT APPLICABLE NPDES REQUIREMENTS INCLUDE:

All wash water from such activity must be prevented from discharging to the stormwater drainage system, and shall comply with the City's Water Quality Regulations and Best Management Practices.

- p. Swimming Pools and Spas: No person shall empty and refill a swimming pool except to prevent or repair structural damage or to comply with public health regulations or directives, or upon written recommendation of a pool maintenance or repair professional.

THE DISTRICT NOTES THAT APPLICABLE NPDES REQUIREMENTS INCLUDE:

Discharge of pool or spa water, other than directly to the sanitary sewer system, shall be consistent with the City's Water Quality Regulations and Best Management Practices. Discharge of pool or spa filter backwash water to the stormwater drainage system is prohibited. All pools and spas shall be equipped with a water recirculation device. The

use of a pool/spa cover is strongly encouraged to prevent evaporative water loss, and for the additional energy and chemical saving benefits.

q. Commercial Laundry Facilities, Laundromats and Common Area Laundry Rooms: Commercial laundry facilities designed, constructed or reconstructed after the Effective Date of this Ordinance shall be equipped with a water reclamation system for reuse of rinse water. Laundromats and common area laundry rooms shall install high efficiency clothes washing machines as older machines are replaced.

r. Food Service Facilities:

1. Drinking Water: Food service facilities within the District's service area shall not serve or refill water to customers or patrons, except upon request of such customer(s) or patron(s).
2. Restaurants Required to Use Water Conserving Dish Wash Spray Valves: Food preparation establishments, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.
3. Dishwashing and Garbage Disposals: All commercial kitchens with dishwashing facilities shall encourage the activity of scraping food waste into a garbage can rather than using a garbage disposal. All existing pre-rinse spray nozzles shall be retrofitted to models using 1.6 gallons per minute or less, by July 1, 2010.
4. Public Awareness: The owner / manager of each restaurant, and other visitor-serving facility shall ensure that such facility displays, in places visible to all customers, placards or decals approved by the District, promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.
5. Other Water Using Activities: Defrosting food with running water shall be avoided and discouraged. If using a hose for wash down of kitchens, garbage areas, or any other area required by the health department or for sanitation reasons, it shall have a positive shut off nozzle. Scoop sinks shall be set at minimum flow at all times, and during hours of operation carefully monitored to avoid using water unnecessarily when the scoop sink is not in active use.
6. New or Remodeled kitchens: All other water using equipment in kitchens which are designed, constructed, reconstructed or remodeled after the Effective Date of this Ordinance shall use the best available water conserving technology.

s. Construction:

1. All water hoses used in connection with any construction activities shall be equipped with an automatic shutoff nozzle when an automatic shutoff nozzle can be purchased or otherwise obtained for the size or type of hose in use.

THE DISTRICT NOTES THAT APPLICABLE NPDES REQUIREMENTS INCLUDE:
All water used on a construction site shall be prevented from entering any part of the stormwater drainage system.

- t. Use of Hydrants: No person may use water from any District fire hydrant for any purpose other than fire suppression or emergency aid, without first obtaining a District hydrant meter account or written approval from the Water Conservation Coordinator or his/her designee. Absent such a meter or written permission, current District water theft and meter tampering penalties, charges and policies will be applied based on the District's then-existing Rules and Regulations.
- u. Water Spillage and Runoff: Every person shall minimize runoff beyond the immediate area of use. Every person is deemed to have under his/her control at all times his/her water distribution lines and facilities, and to know the manner and extent of his/her water use and excess runoff. Gutter flooding is specifically prohibited.
- v. Indiscriminate Use: No person shall cause or permit the indiscriminate running of water not otherwise prohibited above which is wasteful and without reasonable purpose.
- w. Public Health and Safety: These regulations shall not be construed to limit water use which is immediately necessary to protect public health and/or safety.

Section VII: Level 1 Water Supply Shortage (WATER WATCH)

- a. A Level 1 Water Supply Shortage exists when the District determines, in its sole discretion, that due to drought or other water supply reductions, a water supply shortage exists, or will exist, and a consumer demand reduction is necessary to ensure sufficient supplies will be available to meet anticipated demands. Upon the declaration by the District of a Level 1 Water Supply Shortage condition, the District will direct implementation of those the mandatory Level 1 conservation measures as identified in this Section VII. The type of event that may prompt the District to declare a Level 1 Water Supply Shortage may include (but shall not be limited to), among other factors, a finding that the District's wholesale water provider(s) calls for extraordinary water conservation.
- b. Additional Water Conservation Measures: In addition to the prohibited uses of water identified in Section VI, the following water conservation requirements may be applied during a declared Level 1 Water Supply Shortage:
 - 1. All non-essential water use shall cease.
 - 2. Limits on Watering Days: Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to four days per week on a schedule established and posted by the District. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than three days per week on a schedule established and posted by the District. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
 - 3. Limit on Watering Duration: Watering or irrigating of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than five (5) minutes watering per day per station. This subsection does not apply to landscape irrigation systems that

exclusively use very low-flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard

4. **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within seventy-two (72) hours of notification by the District unless other arrangements are made with the District.
5. **Pavement/surface washing:** Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas except to alleviate immediate fire or sanitation hazards.
6. **Other Prohibited Uses:** The District may implement other prohibited water uses as determined by the District, after notice to customers.

The determination as to which of the water conservation requirements listed above shall apply during a Level 1 Water Supply Shortage shall either be made by the Board at the time the Level 1 Water Supply shortages declared or such determination may be delegated by the Board to the General Manager or the Water Conservation Coordinator, as the Board shall direct.

Section VIII. Level 2 Water Supply Shortage (WATER ALERT)

- a. A Level 2 Water Supply Shortage exists when the District determines, in its sole discretion, that due to drought or other supply reductions, a water supply shortage exists, or will exist, and a consumer demand reduction is necessary to ensure sufficient supplies will be available to meet anticipate demands. Upon the declaration by the District of a Level 2 Water Supply Shortage condition, the District will direct implementation of those mandatory Level 2 conservation measures as identified in this section.
- b. **Additional Conservation Measures:** In addition to the prohibited uses of water identified in Sections VI and VII, the following additional water conservation requirements may be applied during a declared Level 2 Water Supply Shortage:
 1. **Watering Days:** Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to two days per week on a schedule established and posted by the District. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one day per week on a schedule established and posted by the District. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
 2. **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by the District unless other arrangements are made with the District.

3. Lakes, ponds, fountains, and other water features. The operation of any ornamental fountain or similar structure is prohibited.
4. Limits on Filling Ornamental Lakes or Ponds: Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life or to protect public health or sanitation, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under this Ordinance.
5. Limits on Filling Residential Swimming Pools & Spas: Re-filling of more than one foot and initial filling of residential swimming pools or outdoor spas with potable water is prohibited.
6. Other Prohibited Uses: The District may implement other prohibited water uses as determined by the District, after notice to District customers.
7. Water Allocations / Water Budget: The District, at its option, may establish a water allocation for property served by the District using a method that does not penalize persons for the implementation of conservation methods or the installation of water saving devices. The District shall provide written notice of such allocation by including it in the regular billing statement for the fee or charge or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service.

Following the effective date of such water allocation as established by the District, any person that uses water in excess of the allocation will be subject to a penalty in the amount of 10% of the charge for each tier of water used. The penalty for excess water usage will be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance.

8. Mandatory Percentage Use Reduction: During a Level 2 Water Supply Shortage condition, all customers will be required to reduce water consumption by a percentage determined by the District.

The determination as to which of the water conservation requirements listed above shall apply during a Level 2 Water Supply Shortage shall either be made by the Board at the time the Level 2 Water Supply shortage is declared or such determination may be delegated by the Board to the General Manager or the Water Conservation Coordinator, as the Board shall direct.

Section IX. Level 3 Water Supply Shortage – (WATER EMERGENCY)

- a. A Level 3 Water Supply Shortage condition is also referred to as a “Level 3 Emergency” condition. A Level 3 Emergency condition exists when the Board declares a water shortage emergency and notifies District residents, businesses and customers that a significant reduction in consumer demand is necessary to ensure sufficient supplies will be available to meet anticipated health and safety consumer demands. Upon the declaration of a Level 3 Water Supply Shortage Emergency condition, the District will direct implementation of the mandatory Level 3 conservation measures as identified in this Section.
- b. A Level 3 Emergency exists when the Board finds and declares a water shortage emergency condition pursuant to California Water Code section 350 and notifies its residents and businesses that more than a 30% consumer demand reduction, based on customer type, is required to ensure sufficient supplies for human consumption, sanitation and fire protection. The Board must declare a Water Supply Shortage Emergency in the manner and on the grounds provided in

California Water Code Section 350.in order for a Level 3 Emergency condition to exist for purposes of this Ordinance.

- c. Additional Conservation Measures: In addition to the prohibited uses of water identified in Sections VI, VII, and VIII, the following water conservation requirements may be applied during a declared Level 3 Emergency:
 1. No Watering or Irrigating: Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited. This restriction shall not apply to the following categories of use unless the District has determined that recycled water is available and may be lawfully applied to the use:
 - i. Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or a very low-flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour subject to the hour restrictions in Section VI(a).
 - ii. Maintenance of existing landscape necessary for fire protection;
 - iii. Maintenance of existing landscape for soil erosion control;
 - iv. Maintenance of plant materials identified to be rare or essential to the well being of rare animals;
 - v. Maintenance of landscape within active public parks and playing fields, day care centers, school grounds, cemeteries, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established in Section VIII(b)(1) and time restrictions in Section VI(a) and (b)(1);
 - vi. Public works projects and actively irrigated environmental mitigation projects.
 2. No Washing of Vehicles: Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not is prohibited.
 3. Obligation to Fix Leaks, Breaks or Malfunctions: All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within twenty four (24) hours of notification by the District unless other arrangements are made with the District.
 4. No New Potable Water Service: Upon declaration of a Level 3 Emergency condition, no new potable water service will be provided by the District, no new temporary meters or permanent meters will be provided, and no statements of immediate ability to serve or provide potable water service (such as, will serve letters, certificates, or letters of availability) will be issued by the District, except under the following circumstances:
 1. A valid, unexpired building permit has been issued for the project;
 2. The project is necessary to protect the public's health, safety, and welfare; and/or

3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District.

This subsection does not preclude the resetting or turn-on of meters to provide continuation of water service or the restoration of service that has been interrupted for a period of one year or less.

5. Discontinue Service: The District, in its sole discretion, may discontinue service to consumers who willfully violate provisions of this Section.
6. Other Prohibited Uses: The District may implement other prohibited water uses as determined by the District, after notice to customers.

The determination as to which of the water conservation requirements listed above shall apply during a Level 3 Water Supply Shortage shall either be made by the Board at the time the Level 3 Water Supply shortage is declared or such determination may be delegated by the Board to the General Manager or the Water Conservation Coordinator, as the Board shall direct.

Section X. Procedures for Determination / Notification of Water Supply Shortage

- a. Declaration and Notification of Level 1 & 2 Water Supply Shortage: The existence of Level 1 and Level 2 Water Supply Shortage conditions may be declared by resolution adopted by the Board at a regular or special public meeting held in accordance with State law. The mandatory conservation requirements applicable to the Level 1 or Level 2 conditions, as determined by the Board, shall take effect on the tenth day after the date the shortage level is declared and identified. Within five days following the declaration of the shortage level, the District shall publish a copy of the resolution in a newspaper used for publication of official notices. Upon the cessation of a Level 1 or Level 2 Water Supply Shortage condition shall be determined by the Board, and notice thereof provided in the same manner as set forth above. If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. A water allocation shall be effective on the fifth day following the date of mailing or at such later date as specified in the notice.
- b. Declaration and Notification of Level 3 Water Supply Shortage: The existence of a Level 3 Emergency condition may be declared in accordance with the procedures specified in Water Code Sections 351 and 352. The mandatory conservation requirements applicable to the Level 3 conditions, as determined by the Board as set forth herein shall take effect on the tenth (10) day after the date such shortage emergency is declared. Within five (5) days following the declaration of such shortage emergency, the District shall publish a copy of the resolution in a newspaper used for the publication of official notices. If the District establishes a water allocation, it shall provide notice of the allocation by including it in the regular billing statement or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. A water allocation shall be effective on the fifth day following the date of mailing or at such later date as specified in the notice.

Section XI. Other Provisions

- a. Commercial Car Wash Systems: Effective on January 1, 2011, all commercial conveyor car wash systems which use District water must have installed and operational re-circulating water systems or must have secured a waiver of this requirement from the District.
- b. Large Landscape Areas – Rain Sensors: Large landscape areas, such as parks, cemeteries, golf courses, school grounds, and playing fields, that use landscape irrigation systems to water or irrigate, must use landscape irrigation systems with rain sensors that automatically shut off such systems during periods of rain or irrigation timers which automatically use information such as evapotranspiration sensors to set an efficient water use schedule.
- c. Reporting Mechanism - Hotline: The District shall establish a water use/water waste hotline for residents and customers to report violations of this Ordinance or gross water waste.

Section XII. Hardship Waiver

- a. Undue and Disproportionate Hardship: If, due to unique circumstances, a specific requirement of this Ordinance would result in undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to District water users generally or to similar property or classes of water users, then the person may apply for a waiver to the requirements as provided in this Section XII.
- b. Written Finding: The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship to a person using water or to property upon which water is used, that is disproportionate to the impacts to water users generally or to similar property or classes of water use due to specific and unique circumstances of the user or the user's property.
 1. Application: Application for a waiver shall be on a form prescribed by the District and shall be accompanied by a non-refundable processing fee in an amount set by resolution of the District.
 2. Supporting Documentation: The application shall be accompanied by photographs, maps, drawings, and other information, including a written statement of the applicant in support of such application.
 3. Required Findings for Variance: An application for a waiver shall be denied unless the Water Conservation Coordinator finds, based in the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the District or its Agent, all of the following:
 - i. That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other District residents and businesses;
 - ii. That because of special circumstances applicable to the property or its use, the strict application of this Ordinance would have a disproportionate impact on the property or use that exceeds the impacts to District residents and businesses generally.

- iii. That the authorizing of such waiver will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the District to effectuate the purpose of this Ordinance and will not be detrimental to the public interest; and
 - iv. That the condition or situation of the subject property or the intended use of the property for which the waiver is sought is not common, recurrent or general in nature.
4. Approval Authority: The Water Conservation Coordinator shall exercise approval authority and act upon any completed application no later than ten (10) days after submittal and may approve, conditionally approve, or deny the waiver. The applicant requesting the waiver shall be promptly notified in writing of any action(s) taken. Unless specified otherwise at the time a waiver is approved, the waiver applies to the subject property during the term of the mandatory water supply shortage condition.
5. Appeals to the District: An applicant may appeal a decision or condition of the Water Conservation Coordinator on a waiver application to the Board within 10 days of the decision upon written request for a hearing. The request shall state the grounds for the appeal. At a public meeting, the Board shall act as the approval authority and review the appeal de novo by following the regular waiver procedure. The decision of the Board shall be final.

Section XIII. Penalties and Violations

- a. Civil Penalties: Civil penalties for failure to comply with any provisions of the Ordinance shall be as follows:
- 1. First Violation: The District shall issue a written warning and deliver a copy of this Ordinance in person or by mail.
 - 2. Second Violation: A second violation within the succeeding twelve (12) calendar months after an initial violation is punishable by a fine not to exceed one hundred dollars (\$100).
 - 3. Third Violation: A third violation within the succeeding twelve (12) calendar months after an initial violation is punishable by a fine not to exceed two hundred and fifty (\$250).
 - 4. Fourth and Subsequent Violations: A fourth and any subsequent violation after an initial violation is punishable by a fine not to exceed five hundred (\$500). In addition, the District may also undertake the following actions:
 - i. Water Flow Restrictor: In addition to any fines, the District may install a water flow restrictor device of approximately one gallon per minute capacity for services up to one and one-half inch size and comparatively sized restrictors for larger services after written notice of intent to install a flow restrictor for a minimum of forty eight (48) hours.
 - ii. Termination of Service: In addition to any fines and the installation of a water flow restrictor, the District may disconnect and/or terminate a customer's water service.

- b. **Cost of Flow Restrictor and Disconnecting Service:** A person or entity that violates this Ordinance is responsible for payment of the District's charges for installing and/or removing any flow restricting device and for disconnecting and/or reconnecting service per the District's schedule of charges then in effect. The charge for installing and/or removing any flow restricting device shall be paid to the District before the device is removed. Nonpayment shall be subject to the same remedies as nonpayment of basic water rates.
- c. **Separate Offenses:** Each day that a violation of this Ordinance occurs is a separate violation.
- d. **Notice and Hearing:**
 - 1. The District shall issue a Notice of Violation by mail or personal delivery at least ten (10) days before taking any enforcement action described herein and such notice shall describe the enforcement action(s) to be taken. A customer may appeal the Notice of Violation by filing a written notice of appeal with the District no later than the close of business on the day before the date scheduled for enforcement action. Any Notice of Violation not timely appealed shall be final. Upon receipt of a timely appeal, a hearing on the appeal shall be scheduled in a timely manner, and the District shall mail written notice of the hearing to the customer at least ten (10) days before the date of the said hearing.
 - 2. The process for an appeal of a notice of violation shall be established by the District in writing. The appeal may be before the Water Conservation Coordinator, the General Manager or the Board, or their respective designee(s), and shall involve such processes and presentation of information and evidence as the District shall so direct in writing.
 - 3. Pending receipt or a written appeal or pending a hearing pursuant to an appeal, the District may take appropriate steps to prevent the unauthorized use of water as appropriate to the nature and extent of the violations and the current declared water Level condition.

Section XIV. Severability

If any section, subsection, sentence, clause or phrase in this Ordinance or the application thereof to any person or circumstance is for any reason held invalid, the validity of the remainder of the Ordinance or the application of such provision to other persons or circumstances shall not be affected thereby. The District hereby declares it would have passed this Ordinance and each section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases or the application thereof to any person or circumstance be held invalid.

Section XV. Application of Law

The terms, provisions and conditions of this Ordinance not otherwise set forth herein shall be interpreted pursuant to State law.

Section XVI. Superseding Prior Ordinance

Ordinance No. 91-14 of the Trabuco Canyon water District is hereby repealed and superseded by this Ordinance No. 2008-18 upon this Ordinance No. 2008-18 becoming effective.

APPENDIX F – Department of Water Resources AB1420 Compliance Letter

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791



March 30, 2011

Mr. Don Chadd
General Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, California 92679

Dear Mr. Chadd:

The Department of Water Resources (DWR) has reviewed the Trabuco Canyon Water District's (TCWD) Self-Certification Statement – Tables 1 and 2 submitted on March 24, 2011, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of TCWD to receive water management grant or loan funds. DWR has followed the *Draft AB 1420 Compliance Requirements* dated June 1, 2009. For detailed information, please visit <http://www.water.ca.gov/wateruseefficiency/finance/>.

Based on DWR's review of the information in Tables 1 and 2, TCWD has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from TCWD to substantiate the accuracy of the information provided in Tables 1 and 2. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Tables 1 and 2.

If you have any questions, please contact me at (916) 651-7025 or Betsy Vail at (916) 651-9667.

Sincerely,


Fethi BenJemaa
Ag Water Use Efficiency Section Chief

APPENDIX G – 2009 BMP Report

APPENDIX H – 2010 BMP Report
