



**LAGUNA BEACH COUNTY WATER DISTRICT**

**2010 URBAN WATER MANAGEMENT PLAN  
UPDATE**

**JUNE 2011**

**KAREN E. JOHNSON, WATER RESOURCES PLANNING**



# **2010 Urban Water Management Plan Update**

June 2011

**Prepared With Assistance From:**  
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The water supplier is a:	Special District – retailer
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Is the agency a Bureau of Reclamation Contractor?	No
Is the agency a State Water Project Contractor?	No
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Orange County, California**

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## Laguna Beach County Water District

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## Section 1 – Plan Preparation

### 1.1 Background

Laguna Beach County Water District (District or LBCWD) is an independent water district established in 1925 under the California Water Code, with a five-member appointed Commission and a five-member elected Board of Directors. The District serves potable water to a population of approximately 20,850 people in the City of Laguna Beach and small areas of unincorporated lands through approximately 8,450 service connections. The District imports all of its water from the Metropolitan Water District of Southern California (MWD) through the Municipal Water District of Orange County (MWDOC). The District's service area, shown on Figure 1, is largely built out with primarily single-family homes and some commercial uses. This boundary is the same as the Orange County Local Agency Formation Commission designated Sphere of Influence for the District. The service area has a vibrant downtown business district, neighborhood commercial uses along Coast Highway, and professional office buildings and additional retail uses scattered throughout the City. The District does not serve the southern portion of Laguna Beach. The District also sells potable water and provides contract services to Emerald Bay Service District (EBS), a community services district, under a service contract.

This Urban Water Management Plan (UWMP) was prepared in response to the Urban Water Management Planning Act (Act), Water Code Sections 10610 through 10657, which were added by Statute 1983, Chapter 1009, and became effective on January 1, 1984. The Act requires that every urban water supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually prepare and adopt an 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. Sections of this UWMP that correspond to the Act are summarized in Appendix A - UWMP Checklist.

Many amendments have been added to the Act since UWMPs were last required in 2005. The most significant change is SB7X 7, which requires urban suppliers to reduce the statewide average per capita daily water consumption by 20 percent by December 31, 2020. A summary of recent significant changes is provided.

#### **AB1376**

This bill requires water suppliers to provide at least a 60-day notification of the public hearing to adopt an Urban Water Management Plan, to any city or county within which the supplier provides water.

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**AB1420**

This bill requires urban water suppliers to implement water Demand Management Measures (DMM) described in Water Code Section 10631(f) to be eligible for any water management grants or loans awarded or administered by Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), or California Bay-Delta Authority or its successor agency (collectively referred to as “Funding Agencies”). The DMMs correspond to the 14 Best Management Practices 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 individual implementation or participation with a regional group. This bill is in effect until July 1, 2016 unless another statute is enacted.

**SB407**

This bill 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.

**SB1087**

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

**SBx7- 7**

This bill requires all water suppliers to increase water use efficiency. The goal is to achieve a 20 percent reduction in statewide urban per capita water use by December 31, 2020. This bill also establishes an incremental goal of reducing per capita water use by 10 percent by December 31, 2015.

This UWMP was prepared in accordance with the requirements under the Act that urban water purveyors submit an UWMP to the DWR every five years. This 2010 version is an update to the District’s 2005 UWMP. Although not required to look beyond 20 years, the District included supply and demand data to the year 2035 to be consistent with other Municipal Water District of Orange County member agencies.

## 1.2 Coordination

The District is a member of the MWDOC. MWDOC is a member agency of MWD, the regional wholesaler of imported water. MWDOC serves all of Orange County except for the cities of Anaheim, Fullerton, and Santa Ana, which are member agencies of MWD. The District coordinated the development of this UWMP with MWDOC. In accordance with the Act, the District provided its imported water needs to MWDOC. MWDOC and MWD documented available quantities of imported supplies, including the reliability of those supplies for retailers in their respective regional UWMPs. References are made to these documents.

The District works closely with the City of Laguna Beach and EBSD. Most of the District’s service area is within Laguna Beach. In addition, EBSD receives treated water supplies from the District.

District staff, with the assistance of a consultant – Karen E. Johnson, Water Resources Planning – prepared the 2010 UWMP in coordination with the agencies listed in Table 1. In preparing the UWMP, staff utilized the Department of Water Resources *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (March 2011), and other references listed in Appendix B.

<b>Coordination with Appropriate Agencies</b>							
Coordinating Agencies	Participated in Plan Development	Contacted for Assistance	Sent Copy of Draft Plan	Commented on Draft	Attended Public Meetings	Sent Notice of Intention to Adopt	Not Involved/ No Information
<b>City of Laguna Beach</b>		X	X			X	
<b>South Coast Water District</b>		X	X			X	
<b>Emerald Bay Service District</b>		X	X			X	
<b>MWDOC</b>	X	X	X		X	X	
<b>Laguna Beach Chamber of Commerce</b>			X			X	
<b>County of Orange</b>			X			X	

## 1.3 Plan Adoption, Submittal, and Implementation

During the preparation of this UWMP, the District notified the numerous agencies, including the City of Laguna Beach, the primary city within the District’s service area, of its UWMP preparation and offered an opportunity to submit comments on the draft. As presented in Table 1, a draft version of the UWMP was sent to the City of Laguna Beach and relevant water purveyors. These entities were provided notification at least 60 days prior to the public hearing

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held on May 24, 2011 at a District Commission meeting, and were given an opportunity to comment on the draft. The adoption of the plan occurred on June 7, 2011 by the Board of Directors.

Copies of the letters notifying the agencies listed in Table 1, along with public notices of the hearing encouraging the involvement of various community groups, letters of correspondence, and the adoption resolution are included in Appendix C. This 2010 UWMP was provided to DWR, the State Library, and entities receiving water within the District's service area, as well as other relevant entities, within 30 days after adoption. The draft plan was made available for public review before the public hearing; the adopted plan was made available for public review during normal business hours for at least 30 days following adoption. Active involvement in plan preparation by various members of the population, such as the Chamber of Commerce, was encouraged.

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 Regional UWMP (RUWMP), MWDOC provided data specific to each member agency to be used by that agency to update its own UWMP.

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## Section 2 – System Description

### 2.1 District History

Until the early 1920's, the residents of Laguna Beach relied on a few privately owned shallow wells and intermittent rainfall for their water supply. By 1924, growth in Laguna Beach had been so rapid that the private water system could not produce an adequate supply. The heavy pumping exhausted the supply and soon saltwater intrusion and well failure forced the company to discontinue water service. Conditions were so bad that many residents drove to the old county well in Laguna Canyon for water; demand was so great in the summer that residents had to wait for hours before they could draw water.

By the fall of 1924, village residents formed a citizen's committee to search for a reliable water supply with the search pointing toward the Santa Ana River Basin. These pioneer leaders, pretending to be duck hunters, bought 120 acres in Huntington Beach to form a duck-hunting club, but really purchased the City's future water supply.

The Board of Supervisors called for an election on May 4, 1925, and residents went to the polls and approved the formation of the LBCWD by a vote of 359 to 0. A year later, District voters approved a bond issue to purchase the land in Huntington Beach and construct facilities required to pump and convey the water 20 miles south to the District's service area. The system was completed by spring 1927. The original bond was paid off in 1955.

Introduction of water from wells in the Lower Santa Ana River Basin solved Laguna's water problems for several years. However, other water producers in the Basin sued the District to prevent the groundwater production and export to Laguna Beach. In 1933, the Orange County Superior Court determined the right of the District to pump and export 2,025 acre-feet of groundwater from the Lower Santa Ana River Basin each year. Over time, pumping from the basin increased, groundwater elevations fell, and seawater intruded into the Lower Santa Ana River Basin. By 1941, Laguna's water supply had again become salty and unreliable.

Deterioration in the quality of the groundwater caused the District to assist in the formation of Coastal Municipal Water District (CMWD) and to purchase Colorado River water through CMWD from MWD in 1943. The District's well field in the Santa Ana River Basin remained in operation until 1948. The District then relied entirely on the imported supply purchased from CMWD through MWD. In January 2001, CMWD consolidated with MWDOC and the District continued to be 100 percent reliant on imported water from MWDOC through MWD. Currently, the District is looking to exercise its groundwater rights in the Lower Santa Ana River basin as a possible future source of water.

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The publically elected Laguna Beach City Council members serve as the Board of Directors (Board) of the District. The Board meets quarterly. A District Commission is appointed by the Board to serve in an advisory capacity to the Board. The Commission meets twice a month.

## **2.2 Service Area Physical Description**

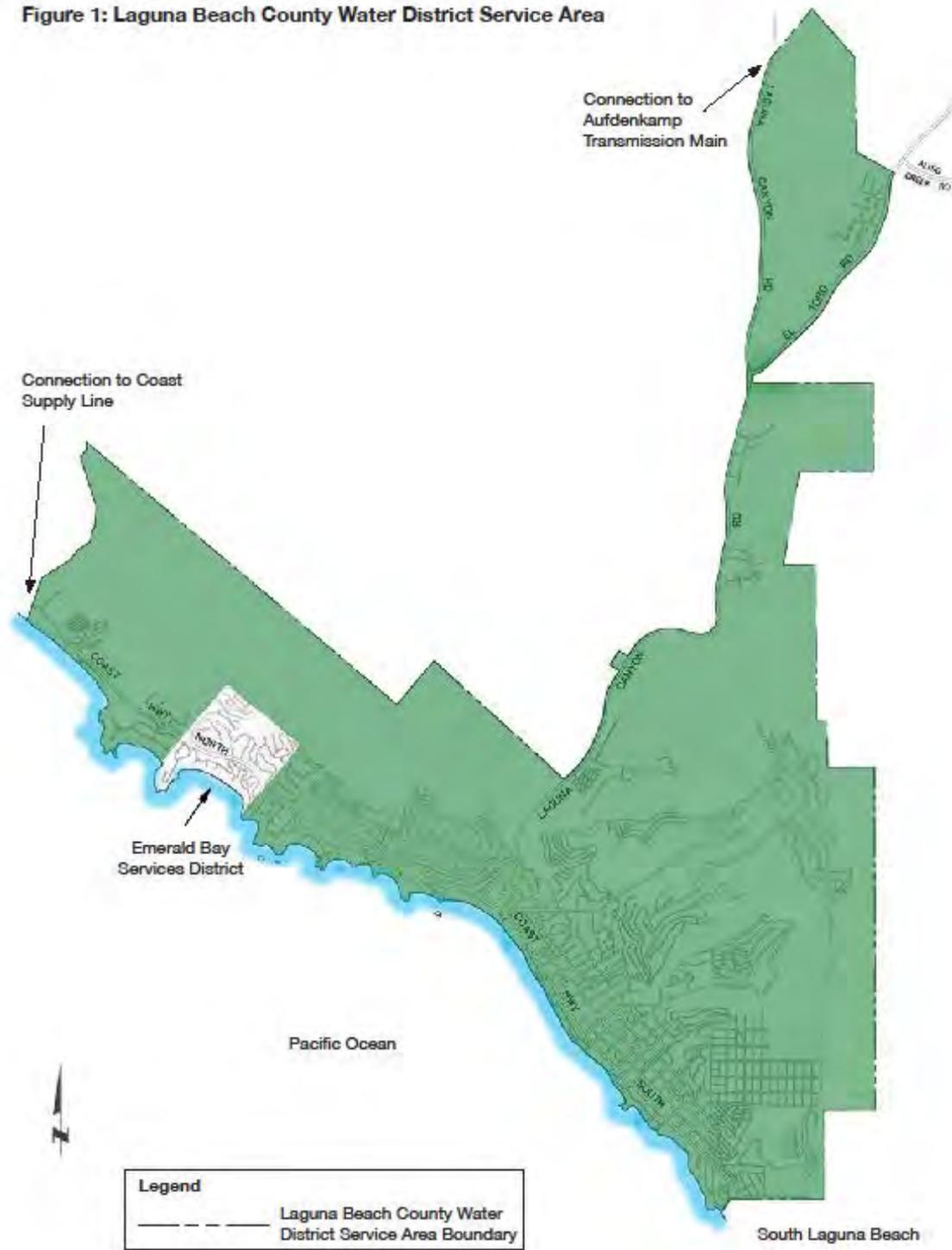
The District's service area includes northern Laguna Beach with a portion of Crystal Cove State Park, the main urbanized area of Laguna Beach not including the south end of the city, and along Laguna Canyon Road north to Sycamore Hills neighborhood off El Toro Road. The service area is characterized by gently rolling and steep hillside areas. The service area is edged to the north and east by the Laguna Greenbelt, which encompasses 10,000 acres of largely undeveloped lands, separating the service area from other communities in the county. The Greenbelt is primarily under the land use authority of the County of Orange and the State of California. To the north, the service area extends beyond the City of Laguna Beach into this greenbelt to include the Crystal Cove State Park. Laguna Canyon separates the Laguna Coast Wilderness Park from the Aliso and Wood Canyons Wilderness Park.

The service area, presented on Figure 1, covers almost 8.5 square miles and has approximately 8,450 service connections for its over 20,850 residents and businesses. The District provides, on average, approximately 4,500 acre-feet per year (afy) or 4 million gallons per day (mgd) of potable water primarily to residential uses and businesses. The service area does not include the unincorporated community of Emerald Bay (a wholesale customer of the District) and South Laguna, which was annexed to the City and is served by South Coast Water District (SCWD).

There are 21 storage reservoirs with a total storage capacity of 33.5 million gallons (mgal) within five pressure zones within the District. These reservoirs are used for daily fluctuations in demand while providing approximately ten days of water to the community in the event of an emergency. The Zitnik Reservoir, completed in 2000, further improves distribution supply by increasing emergency water storage 22 percent. The District's efforts have resulted in superior fire suppression and water supply ratings, which have benefited the community with reduced insurance costs.

District staff operates and maintains 36 pumps in 14 pumping stations. The distribution system includes 136 miles of pipelines ranging in diameter from 4 to 16 inches. Transmission lines bringing imported water to the District include the Aufdenkamp and Coast Supply transmission lines which range from 24 to 42 inches in diameter. The District is the lead agency in a joint powers partnership with SCWD, Irvine Ranch Water District (IRWD), the City of Newport Beach, and the Santa Margarita Water District (SMWD) to convey water from MWD in these jointly held facilities.

Figure 1: Laguna Beach County Water District Service Area



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## 2.3 Climate

Climate plays an important role in the demand for water within the District's service area. Temperature, rainfall, and wind are typical of the Mediterranean climate characterized by mild winters, warm summers, moderate rainfall and general year round sun (with the exception of coastal morning fog during the spring and summer months). Temperatures in Laguna Beach average 62° Fahrenheit year round, 69° Fahrenheit during summer months, and 55° Fahrenheit in the winter. The annual standard average evapotranspiration rate is 47.56 inches.

Average annual rainfall in Laguna Beach is 12 to 13 inches, depending on the location within the service area. Over 90 percent of the rainfall occurs between late October and early April. Higher elevations of the San Joaquin Hills generally receive an annual rainfall of 14 to 15 inches. Distribution of rainfall in the hills is extremely irregular and can vary by more than two inches per year. Torrential downpours can occur in one section of the hills, while another section receives only light showers. Much of the rain that falls on the crest and on the side slopes of the San Joaquin Hills emerges in wet years as springs and seepages near the foot of the northern slopes and generally at the base of the terrace deposits where impermeable rock is encountered. These springs remain active during most of the summer.

Wind, in combination with other climatic and geographic features, is a significant aspect of the District's physical setting. Prevailing winds in Laguna Beach are sea breezes that are generally low in velocity, attaining speeds of 10 to 20 mph. Typically, sea breezes are beneficial to the community because they propel air pollutants inland and provide a cooling effect during the warm summer months, thus keeping outdoor irrigation demands low. In addition to prevailing sea breezes, Laguna Beach occasionally experiences seasonal winds during the fall and winter months referred to as Santa Ana winds. Santa Ana winds are hot, dry northerly to northeasterly winds, which often attain velocities in excess of 40 mph. Santa Ana winds are particularly damaging because they frequently occur during the driest season of the year, increasing the risk of rapidly spreading fires. These wind driven fires cause damage to structures and natural vegetation in the canyon areas and along the edges of the District's service area adjacent to the greenbelt, and increase fire fighting water demands.

## 2.4 Service Area Population

The District has experienced continuous growth in population since its formation in 1925. In 1927, the population of the City of Laguna Beach approached 1,500 people; the City's current population is over 25,000. The area has changed from a rural agricultural, weekend and summer resort area to a permanent, year-round, urbanized area. The total permanent residential population in the District service area is relatively constant. However, because Laguna Beach is a popular vacation and recreation area proximate to Southern California

metropolitan areas, the seasonal population can double or triple in the summer. During July and August, the resident population in Laguna Beach increases to approximately 45,000 with a daily influx of visitors estimated between 25,000 and 35,000 people (Laguna Beach, 2010).

The City of Laguna Beach General Plan guides development within the majority of the District’s service area (see Figure 1). Laguna Beach is essentially built out, except for limited infill development of vacant legal parcels in the existing residential neighborhoods and commercial areas. Some increase in water demands is also anticipated for redevelopment of existing, underutilized lands with increased densities. The majority of vacant land is constrained by steep terrain and access difficulties. Most of the open space around the City has been acquired by the City or the County with easements for park and open space uses.

Historical population estimates prepared for MWDOC by the Center for Demographic Research at California State University Fullerton (CDR) indicate a current District service area population of approximately 20,850. This estimate does not include South Laguna and the community of Emerald Bay has been removed from the CDR estimates. Emerald Bay was deannexed from the LBCWD in 2004. The EBSD is responsible for providing the community of Emerald Bay with water and is a District wholesale customer under contract to LBCWD. Emerald Bay is a gated community with common facilities such as pool, tennis courts, and landscaping with an approximate population of 1,500; it is fully built out. Current and projected LBCWD service area population is presented in Table 2.

Table 2							
Population – Current and Projected							
	2010	2015	2020	2025	2030	2035	Data Source
<b>Service Area Population</b>	20,850	21,648	21,947	22,064	22,227	22,322	<sup>1</sup>

<sup>1</sup>Projected population for City of Laguna Beach from CDR, 2010 adjusted to remove EBSD and South Laguna.

Historical population data from CDR for the City and the District (provided to MWDOC) indicate an average difference between the two entities over the past ten years of 4,823 people (3,223 for South Laguna and 1,500 EBSD). Population projections based on census data from CDR for the City were available and are used here. The difference between the two entities (i.e., 4,723) was subtracted from City projections to determine District population projections.

Water usage due to new development is not expected to substantially increase over the next 20 years. In fact, through the District’s encouragement of drought resistant landscaping, water use efficiency, and changes in behavior to limit urban runoff and improve the quality of ocean water, it is anticipated that existing water use will decline. With most of Laguna Beach developed and no change anticipated to the District’s LAFCO Sphere of Influence for expansion,

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water demand projections were based on population projections adapted to reflect developable lands consistent with the General Plan.

Demand projections presented in Section 3 reflect the development of all vacant parcels with the remainder of the increase in projected population, assumed to be absorbed by increased densities of existing uses (e.g., new Second Residential Units, more multigenerational households and other causes of increased people per households, redevelopment or reuse of existing development, etc.).

## Section 3 – System Demands

Base period ranges used to establish the baseline per capita water demands and water use targets for 2015 and 2020 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. A plan for achieving the targets is identified.

### 3.1 Baselines and Targets

This section describes the base period ranges used to establish the baseline per capita water demands. Water use targets in conformance with SBx7-7 are described for 2020 and the interim target of 2015.

#### 3.1.1 Establishing Baselines

Table 3 presents the base period ranges for the District’s 10 year (1996 through 2005) and five year (2004 through 2008) periods. The 5-year period ending June 2007 resulted in a higher average per capita value of 194 gpcd, but this period did not end after the December 31, 2007 required date. Therefore, 2004 to 2008 was selected for the 5-year base period.

Table 3 (DWR Table 13)			
Base Period Ranges			
Base	Parameter	Value	Units
10 Year Base Period	2008 total water deliveries <sup>1</sup>	3,863	afy
	2008 total volume of delivered recycled water	0	afy
	2008 recycled water as a percent of total deliveries	0	percent
	Number of years in base period	10	years
	Year beginning base period range	1995-96	/
	Year ending base period range	2004-05	/
5 Year Base Period	Number of years in base period	5	years
	Year beginning base period range	2003-04	/
	Year ending base period range	2007-08	/

<sup>1</sup>Total water deliveries do not include sales to other agencies.

Table 4 lists the District population served, water supplied, and per capita consumption for each of the years within a 10-year range. The baseline daily per capita consumption for the 10-year period was 201 gpcd.

<b>Table 4 (DWR Table 14)</b>				
<b>Base Daily Per Capita Water Use — 10 Year Range</b>				
<b>Base Period Year</b>		<b>Distribution System Population</b>	<b>Daily System Gross Water Use (acre-feet)</b>	<b>Annual Daily Per Capita Water Use (gpcd)</b>
<b>Sequence Year</b>	<b>Fiscal Year</b>			
1	1995-96	18,624	4,317	207
2	1996-97	18,722	4,120	196
3	1997-98	18,827	4,982	189
4	1998-99	18,934	4,388	207
5	1999-00	19,079	4,651	217
6	2000-01	19,312	4,371	202
7	2001-02	19,579	4,317	197
8	2002-03	19,820	4,608	207
9	2003-04	19,954	4,480	200
10	2004-05	20,038	4,164	185
<b>Base Daily Per Capita Water Use</b>				201

Table 5 lists the population served, water supplied, and per capita consumption for years within a five-year range. 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. The baseline daily per capita consumption for the five-year period was 187. Ninety-five percent of the five-year base is 178 gpcd. As discussed next under targets, 178 gpcd is higher than the 2020 target for the District of 161 gpcd, thus the District target is greater than a five percent reduction per capita.

<b>Table 5 (DWR Table 15)</b>				
<b>Base Daily Per Capita Water Use — 5 Year Range</b>				
<b>Base Period Year</b>		<b>Distribution System Population</b>	<b>Daily System Gross Water Use (acre-feet)</b>	<b>Annual Daily Per Capita Water Use (gpcd)</b>
<b>Sequence Year</b>	<b>Year</b>			
1	2003-04	19,954	4,480	200
2	2004-05	20,038	4,164	185
3	2005-06	20,067	4,147	184
4	2006-07	19,855	4,281	192
5	2007-08	19,915	3,863	173
<b>Base Daily Per Capita Water Use</b>				187

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### 3.1.2 Establishing 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 161 gpcd for the District.
- **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.
- **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 target for the entire South Coast region is 149 gpcd. Method 3 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 previous water supplier BMPs 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.

#### Individual District SBx7-7 Targets

Individual agency targets are needed to meet the goal of a 20 percent reduction in per capita use by 2020 and the interim water use efficiency target of 10 percent by 2015 as set forth in the Water Conservation Act of 2009 (SBx7-7). 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 2 requires landscaping data that is not currently available; this methodology could be revisited during preparation of the 2015 UWMP. Methodology 3 resulted in a lower target than that desired by the District, and Methodology 4 requires DMM data that is not currently available; this methodology could be revisited during preparation of the 2015 UWMP.

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

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is 201 gpcd. A 10 percent reduction by 2015 would result in 181 gpcd. A 20 percent reduction would result in 161 gpcd by 2020.

### **Regional Alliance**

The District is participating in a regional alliance with MWDOC. MWDOC formed a regional alliance for all of its 28 member agencies, of which LBCWD is a member, plus three other agencies in Orange County. Under the Orange County 20x2020 Regional Alliance, the entire region is able to benefit from local and regional investments, such as the Groundwater Replenishment System, recycled water, and water use efficiency programs that MWDOC and member agencies are implementing. MWDOC will provide annual monitoring and reporting for the Orange County region on progress toward compliance with the targets.

If the regional alliance meets its water use target, all agencies in that alliance are deemed compliant regardless of individual performance. If the Orange County 20x2020 Regional Alliance fails to meet its target, each individual supplier in Orange County, including LBCWD, will have to meet its individual target.

MWDOC calculated the regional target for the alliance as 157 gpcd at 2020 and 174 at 2015. This estimate was provided to the District in draft form and will be updated as MWDOC finalizes its UWMP.

## **3.2 Water Demands**

The District has several billing classifications: single-family residential, multi-family residential, commercial (which includes industrial, hotels, and institutional/government), landscape, and mixed uses. Mixed uses have a residential use along with commercial or other use. There are no agricultural accounts. Table 6 presents 2005 deliveries by water use sector and includes a breakdown by percentage of each water use sector. Approximately 76 percent of the demands are associated with residential uses. Table 7 presents 2010 deliveries by water use sector. Sales to other agencies are not included.

## **3.3 Water Demand Projections**

Demand projections are identified here by water use sector, planned low-income housing, sales to EBSD, and other water uses and losses.

### **3.3.1 Projections by Water Use Sector**

Tables 8 through 10 present water demand projections based on an increase in population projected by the Center for Demographic Research (CDR, 2010) through 2035 for the City, minus population not in the District service area, as presented in Table 2 and described in

<b>Table 6 (DWR Table 3)</b>						
<b>Water Deliveries — Actual, 2005</b>						
	<b>2005 (acre-feet)</b>					
	<b>Metered</b>			<b>Not Metered</b>		<b>Total</b>
<b>Water Use Sector</b>	<b>No. of Accounts</b>	<b>Volume</b>	<b>Percent of Total</b>	<b>No. of Accounts</b>	<b>Volume</b>	<b>Volume</b>
<b>Single Family Residential</b>	6,066	2,382	60	0	0	2,382
<b>Multi-family Residential</b>	1,144	624	16	0	0	624
<b>Commercial/Institutional/Government</b>	530	762	19	0	0	762
<b>Industrial (inc. w/ Commercial)</b>	0	0	0	0	0	0
<b>Institutional (inc. w/ Commercial)</b>	0	0	0	0	0	0
<b>Landscape</b>	82	161	4	0	0	161
<b>Agriculture</b>	0	0	0	0	0	0
<b>Other – Mixed Use</b>	138	30	1	0	0	30
<b>Total</b>	7,960	3,959		0	0	3,959

<b>Table 7 (DWR Table 4)</b>					
<b>Water Deliveries — Actual, 2010</b>					
	<b>2010 (acre-feet)</b>				
	<b>Metered</b>		<b>Not metered</b>		<b>Total</b>
<b>Water Use Sector</b>	<b>No. of Accounts</b>	<b>Volume</b>	<b>No of Accounts</b>	<b>Volume</b>	<b>Volume</b>
<b>Single Family Residential</b>	6,261	1,982	0	0	1,982
<b>Multi-family Residential</b>	1,043	519	0	0	519
<b>Commercial/Institutional/Government</b>	472	634	0	0	634
<b>Industrial (inc. w/ Commercial)</b>	0	0	0	0	0
<b>Institutional (inc. w/ Commercial)</b>	0	0	0	0	0
<b>Landscape</b>	103	134	0	0	134
<b>Agriculture</b>	0	0	0	0	0
<b>Other – Mixed Use</b>	139	25	0	0	25
<b>Total</b>	8,018	3,294	0	0	3,294

Section 2. The CDR relies on Department of Finance data for its estimates and projections. The projected increase in population within the District service area between 2010 and 2035 is 1,472 additional people.

As discussed in Section 2, there is very little developable land in the service area that could accommodate additional development. According to the Housing Element of the City’s General Plan, infill of approximately 292 units (35 multi-family and 257 single family units) can be accommodated on vacant, developable residential parcels within the City, excluding South Laguna. The increase in new units was applied to single family accounts and multi-family accounts in Tables 8 through 10 in accordance with these General Plan-identified developable parcels. It was assumed that a population of 625 can be absorbed in the vacant but developable lots (292 units at 2.14 people per household per CDR). Existing housing will accommodate the remaining increase of 847 residents (not associated with new housing units) through a greater number of people per household, new mixed uses and higher densities from redeveloped lands, plus new secondary units, etc. Although the District has a separate Mixed Use billing category, there was not enough information available to specifically project this increase in accounts or demands. Since mixed uses include residential uses, and most of the water demand for mixed uses is typically associated with the residential use, the increase in residential demands associated with mixed uses was accounted for in the residential categories.

Water demand projections presented in the tables below reflect projected population and General Plan designated developable parcels. Existing demands were reduced from the 201 gpcd baseline average to reflect SBx7-7 targets. New residents were assumed to not contribute significantly to an increase in outdoor irrigation and non-residential demands; demands reflecting the planned increases in population were calculated at 60 percent of the target per capita demands.

<b>Table 8 (DWR Table 5)</b>					
<b>Water Deliveries — Projected, 2015</b>					
<b>Water Use Sector</b>	<b>2015 (acre-feet)</b>				
	<b>Metered</b>		<b>Not metered</b>		<b>Total</b>
	<b>No. of Accounts</b>	<b>Volume</b>	<b>No. of Accounts</b>	<b>Volume</b>	<b>Volume</b>
<b>Single Family Residential</b>	6,400	2,597	0	0	2,597
<b>Multi-family Residential</b>	1,062	680	0	0	680
<b>Commercial/Institutional/ Government</b>	472	831	0	0	831
<b>Industrial (inc. w/ Commercial)</b>	0	0	0	0	0
<b>Institutional (inc. w/ Commercial)</b>	0	0	0	0	0
<b>Landscape</b>	103	176	0	0	176
<b>Agriculture</b>	0	0	0	0	0
<b>Other – Mixed Use</b>	139	33	0	0	33
<b>Total</b>	<b>8,176</b>	<b>4,317</b>	<b>0</b>	<b>0</b>	<b>4,317</b>

Table 9 (DWR Table 6)					
Water Deliveries — Projected, 2020					
	2020 (acre-feet)				
	Metered		Not metered		Total
Water Use Sector	No. of Accounts	Volume	No. of Accounts	Volume	Volume
Single Family Residential	6,453	2,363	0	0	2,363
Multi-family Residential	1,069	619	0	0	619
Commercial/Institutional/ Government	472	756	0	0	756
Industrial (inc. w/ Commercial)	0	0	0	0	0
Institutional (inc. w/ Commercial)	0	0	0	0	0
Landscape	103	160	0	0	160
Agriculture	0	0	0	0	0
Other – Mixed Use	139	30	0	0	30
<b>Total</b>	<b>8,236</b>	<b>3,927</b>	<b>0</b>	<b>0</b>	<b>3,927</b>

Table 10 (DWR Table 7)						
Water Deliveries — Projected, 2025, 2030, 2035 (acre-feet)						
	2025		2030		2035	
	Metered		Metered		Metered	
Water Use Sector	No. of Accounts	Volume	No. of Accounts	Volume	No. of Accounts	Volume
Single Family Residential	6,473	2,383	6,501	2,399	6,518	2,412
Multi-family Residential	1,072	624	1,076	628	1,078	632
Commercial/Institutional/ Government	472	762	472	767	472	772
Industrial (inc. w/ Commercial)	0	0	0	0	0	0
Institutional (inc. w/ Commercial)	0	0	0	0	0	0
Landscape	103	161	103	162	103	163
Agriculture	0	0	0	0	0	0
Other – Mixed Use	139	30	139	30	139	30
<b>Total</b>	<b>8,259</b>	<b>3,961</b>	<b>8,291</b>	<b>3,987</b>	<b>8,310</b>	<b>4,009</b>

### 3.3.2 Lower Income Demand Projections

SB 1087 requires water providers to grant priority service hook-ups to lower income housing developments. The District passed a resolution in October 2006 (Resolution No. 701) establishing written policy for the provision of water service to developments that include housing units affordable to lower income households. The resolution states that if there is any shortfall in the capacity of the District to provide water service, then it will reserve from its then

uncommitted water supplies an amount equivalent to the demands of the planned housing units affordable to lower income households.

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’s updated Housing Element of the General Plan indicates the need for new construction of 12 very low- and low-income units within the City by 2014. Demands for planned low-income housing by 2015 were based on a ten percent reduction in existing per capita demands for 2015. New demands associated with planned low-income housing are five acre-feet in 2015, as presented in Table 11.

Table 11 (DWR Table 8)					
Lower Income Housing - Projected Water Demands (acre-feet) <sup>1</sup>					
Water Use Sector	2015	2020	2025	2030	2035
Single Family Residential	5	5	5	5	5
Multi-family Residential	0	0	0	0	0
<b>Total</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>

<sup>1</sup> Demands based on housing units identified in City General Plan Housing Element, 2008.

### 3.3.3 Sales to Other Agencies

The District wholesales potable water to EBSD by contract agreement. Past, current, and projected water sales to EBSD were identified and quantified in Table 12. The Agreement between the District and EBSD is located in Appendix D.

Table 12 (DWR Table 9)							
Sales to Other Water Agencies (acre-feet) <sup>1</sup>							
Agency	2005	2010	2015	2020	2025	2030	2035
Emerald Bay Service District	315	305	326	326	326	326	326
<b>Total</b>	<b>315</b>	<b>305</b>	<b>326</b>	<b>326</b>	<b>326</b>	<b>326</b>	<b>326</b>

<sup>1</sup> Projected sales were based on average of 2005 through 2009 sales.

### 3.3.4 Other Water Uses and Losses

The only additional water uses are unbilled usage, as presented in Table 13 as System Losses. The difference between water production and billed consumption is 4.3 percent. This estimate reflects unbilled water usage, which includes system losses, meter reading errors, etc, as the District accounts for all water use. The percent is an average of the previous seven years; the previous five years averaged 3.2 percent, which is unusually low; the higher estimate of 4.3 percent was used instead.

Table 13 (DWR Table 10)							
Additional Water Uses and Losses (acre-feet)							
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	0	0	0	0	0	0	0
System Losses <sup>1</sup>	205	140	184	167	169	170	171
Other (define)	0	0	0	0	0	0	0
<b>Total</b>	<b>205</b>	<b>140</b>	<b>184</b>	<b>167</b>	<b>169</b>	<b>170</b>	<b>171</b>

<sup>1</sup>Since the District accounts for all usage, system losses are considered unbilled water use, the difference between production and billed consumption: 4.3 percent.

### 3.3.5 Total Water Use

Total water use for the District is comprised of water deliveries, sales to EBSD, and unmetered uses and losses. Total water use is presented in Table 14.

Table 14 (DWR Table 11)							
Total Water Use (acre-feet)							
Water Use	2005	2010	2015	2020	2025	2030	2035
Total Water Deliveries (from Tables 6 to 10)	3,959	3,294	4,317	3,927	3,961	3,987	4,009
Sales to Other Water Agencies (from Table 12)	315	326	326	326	326	326	326
Additional Water Uses and Losses (from Table 13)	205	140	184	167	169	170	171
<b>Total</b>	<b>4,479</b>	<b>3,760</b>	<b>4,827</b>	<b>4,420</b>	<b>4,456</b>	<b>4,483</b>	<b>4,505</b>

Note: Totals may differ slightly due to rounding.

Table 15 presents demand projections provided by the District to MWDOC. Water demands were much lower in 2010 than anticipated. Water demand projections were updated for this 2010 UWMP with new demands reflecting the General Plan. This resulted in a slight difference in demands compared with those previously submitted to MWDOC.

Table 15 (DWR Table 12)							
LBCWD Demand Projections Provided to MWDOC (acre-feet)							
Wholesaler	Contracted Volume	2010	2015	2020	2025	2030	2035
MWDOC/MWD <sup>1</sup>	<sup>2</sup>	4,305	4,355	4,410	4,465	4,520	4,520

<sup>1</sup> Projections provided by MWDOC to MWD.

<sup>2</sup> MWDOC's contracted volume with MWD is for the total of all of its member agencies.

### 3.4 Water Use Reduction Implementation Plan

If the Orange County Regional Alliance does not achieve its targets, the District will meet the SBx7-7 individual 2015 target of 181 gpcd and the 2020 target of 161 gpcd through the following passive and active water efficiency activities.

- Demand management measures that the District and MWDOC will continue to implement
- Other influences such as planned use of recycled water, higher number of people per household expected to accommodate projected population, code-based remodeling savings, and a recent change to an allocation based, property specific, tiered water rate structure.
- Water conservation permanent restrictions

#### 3.4.1 Demand Management Measures

Conservation activities include the demand management measures that the District implements on an on-going basis. See Section 6 for more information.

#### 3.4.2 Other Influences

Recycled water use is anticipated to be 200 afy by 2015 and 400 afy by 2020. See Section 4 for more information on recycled water use.

Influences such as demographic changes and remodeling will contribute to the District meeting its target water demands. For example, the majority of Laguna Beach homes were built in the 1930's through 1960's, many as vacation homes. With the high price of housing, young adults are not moving out of their family homes as early as with previous generations. With this increasing trend of up to three generations living together longer, outdoor consumption per dwelling unit is not likely to change but consumption per capita will decrease. Population projections for this primarily built out community reflect this trend. In addition, new owners of very expensive, older homes, such as those in Laguna Beach, typically remodel. Remodeling will result in additional code-based conservation fixtures and lower water use landscaping.

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Changes to water rates became effective in January 2011. These new budget based water rates increase awareness of individual customer water bills. In addition, with the new rates about 20 percent of customers will have higher water bills resulting in individuals paying more attention to water consumption, landscape plantings, etc. Raised awareness of water consumption typically results in changed behavior with a decrease in usage. Additional information on the new water rates is located in Section 6.

### 3.4.3 Permanent Restrictions

Permanent mandatory water use efficiency measures identified in Ordinance 100 (located in Appendix F) include the following.

#### General Restrictions

- **Limits on Watering Hours.** Watering or irrigating is prohibited any day of the week between 8am and 8pm. This applies to lawns, landscaping, and all other vegetated areas.
- **Water Flow or Runoff.** It is prohibited to water lawns, landscaping, and vegetated areas in a manner that causes or allows water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch.
- **Obligation to Fix Leaks, Breaks or Malfunctions in Lines, Fixtures or Facilities.** Loss or escape of water through breaks, leaks, or malfunctions in the water user's plumbing, distribution or irrigation system is prohibited for any period of time after such water waste should have reasonably been discovered and corrected. Leaks, breaks, or malfunctions must be corrected in no more than three days of District notification. The District, at its sole discretion, may temporarily shut-off service if unable to contact the account holder on record.
- **Water Served Only Upon Request.** Eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, clubs or other public places where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.
- **Option Not To Have Towels/Linens Laundered.** Hotels, motels, and other commercial lodging establishments must provide guests the option of not having their used towels and linens laundered. Lodging establishments must prominently display notice of this option in each room and/or bathroom, using clear and easily understood language.
- **Hosing or Washing Down Hard or Paved Surfaces.** It is prohibited to use water to hose or wash down hard or paved surfaces, such as sidewalks, walkways, driveways, parking areas, tennis courts, patios, or alleys, unless using a bucket or automatic shut-off hose nozzle, with a few exemptions.

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- **Hosing or Washing Down Vehicles.** It is prohibited to use water to hose or wash down a motorized or non-motorized vehicle, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats or trailers, unless using a bucket or automatic shut-off hose nozzle, with a few exemptions.
  - **Re-Circulating Decorative Water Fountains and Features.** All new decorative water fountains and water features must re-circulate water - or users must secure a waiver from the District.
  - **Unauthorized Use of Fire Hydrants Prohibited.** No person may use water from any fire hydrant for any purpose other than fire suppression or emergency aid, without first requesting and posting the appropriate fees at the District and obtaining a hydrant meter to record all water consumption for a specified project. Absent a meter, water theft and meter tampering fees will be applied as appropriate.

### **Commercial Kitchen Requirements**

- **Water-Efficient Pre-Rinse Kitchen Spray Valves.** All new food preparation establishments, such as restaurants, cafes, and hotels, are prohibited from using non-water efficient kitchen spray valves.
- **Best-Available Water-Conserving Technology.** All water using equipment in new commercial kitchens must use the best available, water conserving technology.
- **Automatic Shut-Off Hose Nozzles.** When hosing or washing kitchen, garbage areas, or other areas for sanitary reasons as required by the Health Department, hoses shall be equipped with automatic shut-off hose nozzles.

### **Commercial Water Recirculation Requirements**

- **No Installation of Non-recirculating Water Systems in Car Wash and Laundry Systems.** Installation of non-recirculating water systems is prohibited in new commercial conveyor car wash and new laundry systems.
- **No Installation of Single-Pass Cooling Systems.** Installation of single-pass cooling systems is prohibited in buildings requesting new water service.

### **Construction Site Requirements**

- **Recycled or non-potable water** must be used, when available.
- **No potable water may be used for soil compaction or dust control** where there is a reasonably available source of recycled or non-potable water approved by the Department of Public Health and appropriate for such use.
- **Water hoses shall be equipped with automatic shut-off nozzles,** given such devices are available for the size and type of hoses in use.

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### **Wasteful Water Use**

- Upon notice by the District, persons shall cease to cause or permit the indiscriminate use of water not otherwise prohibited above which is wasteful and without reasonable purpose.

This implementation plan was presented at the District UWMP public hearing in June 2011. Community input was solicited. No economic impacts are anticipated to result from the implementation plan.

## Section 4 – System Supplies

The District’s only currently utilized water supply is imported MWD treated water. Table 16 presents supplies available to the District under its current and projected supply portfolio. These supplies reflect gross water that enters the District’s distribution system as production quantities. Current and future water supplies are described in this section.

Table 16							
Water Supplies — Current and Projected (acre-feet)							
Water Supply Sources		2010	2015	2020	2025	2030	2035
Water Purchased From:	Wholesaler Supplied Volume (yes/no)						
MWD/MWDOC <sup>1</sup>	No	4,930	4,930	4,930	4,930	4,930	4,930
Supplier-produced Groundwater <sup>2</sup>		0	0	2,025	2,025	2,025	2,025
Supplier-produced Surface Water		0	0	0	0	0	0
Transfers In		0	0	0	0	0	0
Exchanges In		0	0	0	0	0	0
Recycled Water <sup>3</sup>		0	200	400	400	400	400
Desalinated Sea Water <sup>4</sup>		0	0	1,000	1,000	1,000	1,000
Other		0	0	0	0	0	0
<b>Total</b>		4,930	5,130	8,355	8,355	8,355	8,355

<sup>1</sup>Imported supplies based on maximum purchase within past 10 years of 4,934 acre-feet in 2002-03.

<sup>2</sup>Projected groundwater supplies reflect Santa Ana River Basin entitlement of 2,025 afy.

<sup>3</sup>Recycled water provided by Moulton Niguel Water District planned for startup in 2013.

<sup>4</sup>Desalinated water planned from either the Dana Point or Huntington Beach project.

### 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 4,300 acre-feet of imported water. Quantities presented in Table 16 represent the maximum annual amount of water purchased by the District from MWDOC/MWD in the past ten years, which was 4,934 acre-feet in 2003.

#### 4.1.1 MWD Wholesale Supplies

As described in MWDOC’s 2005 Regional Urban Water Management Plan (RUWMP), over 17 million Southern Californians rely on MWD for imported water. MWD wholesales imported water supplies to member cities and water districts in six Southern California counties. MWD

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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 acre-feet of water. 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 LBCWD Imported Purchases**

Currently, 100 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 water, raw water is conveyed from Lake Mathews via the Lower Feeder to the Robert B. Diemer Treatment Plant in Yorba Linda. The treated water is conveyed through the East Orange County Feeder No 2 to both the Aufdenkamp Transmission Main (a jointly owned regional facility) and Coast Supply Line (also a jointly owned facility). Figure 1 presents where these two facilities enter the District service area.

The imported District supplies indicated in Table 16 represent the maximum annual purchase made by the District during the past 10 years of 4,934 acre-feet. This 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 4,303 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.

Table 17						
Wholesale Supplies — Existing and Planned Sources of Water (acre-feet)						
Wholesale Sources	Contracted Volume	2015	2020	2025	2030	2035
Groundwater	0	0	0	0	0	0
Surface Water	0	0	0	0	0	0
Imported Water from MWDOC	Based on Total MWDOC Entitlement	4,930	4,930	4,930	4,930	4,930
Recycled Water from Moulton Niguel Water District	0	100	200	400	400	400

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.

#### 4.1.4 Exported Water Volume

The District sells treated water to EBSD through District distribution system facilities. The source of supply is the MWD/MWDOC imported water conveyed through the Coast Supply Line to the District. Approximately 326 afy have been sold, on average, to EBSD over the previous five years (2005 through 2009). Actual sales varied from a low of 305 acre-feet to a high of 352 acre-feet. These averaged historical sales were used as future quantities, as presented in Table 9, Sales to Other Agencies.

## 4.2 Groundwater Resources

Groundwater resources available to the District include the Orange County Groundwater Basin and Laguna Canyon Basin. The quantities of groundwater availability in Table 16 were based on

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the District's legal right to Santa Ana River Basin supply only. These two groundwater supplies are discussed here.

#### **4.2.1 Orange County Groundwater Basin**

This section describes the District's entitlement to Basin water. The groundwater management agency, Orange County Water District, is described here followed by a description of the Laguna Canyon groundwater basin.

##### **Laguna Beach Wells in the Lower Santa Ana River Groundwater Basin**

In 1933, the District obtained an adjudicated right to 2,025 acre-feet of underground water storage in the Lower Santa Ana River Basin within the Orange County Groundwater Basin (Basin). This groundwater right originated in 1926. The court Judgment is provided in Appendix E. The Basin is managed by the Orange County Water District (OCWD). Although the District's rights to this water were adjudicated, the Basin overall has not been adjudicated.

The District is currently exploring options with the OCWD for exercising its groundwater rights to deliver this amount of water. The District proposes the development of a production well in the Basin. The purpose of the project is to augment the District water supply portfolio with alternative sources to imported water.

##### **OCWD Basin Management**

OCWD manages the Basin under the Orange County Water District Act, Water Code App., Ch 40 (Act), which is described in numerous OCWD documents including the MWDOC RUWMP 2010. OCWD manages the basin for the benefit of municipal, agricultural, and private groundwater producers and is responsible for the protection of water rights on the Santa Ana River in Orange County, as well as the management and replenishment of the Basin. The groundwater basin, which underlies north and central Orange County, provides approximately 66 percent of the water needed in that area; imported water meets the balance of the water demand.

Groundwater is pumped by producers before being delivered to customers.

Total groundwater production from the Basin is approximately 300,000 afy. The framework for the production management is based on establishing the Basin Production Percentage (BPP). BPP is the ratio of groundwater production to total water demands expressed as a percentage. Pumping below the BPP, the District is charged a fee on a per acre-foot basis, called the Replenishment Assessment (RA). Groundwater production above the BPP is charged the RA and the Basin Equity Assessment (BEA), which is set so that the cost of pumping above the BPP reflects the costs of importing water to use to replenish the Basin. Thus a financial disincentive is provided for production above the BPP. The OCWD Board of Directors can annually adjust the BPP. The BPP was established at 75 percent from 1993 to 2007 and reduced to 62 percent

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in 2009. It was lowered to reduce the accumulated overdraft in the Basin. The BPP is not an extraction limitation - exceedences result in financial assessments on excess production.

**Description of Basin.** According to the MWDOC 2005 RUWMP, the Orange County Groundwater Basin is dominated by a deep structural depression, containing a thick accumulation of fresh waterbearing interbedded marine and continental sand, silt, and clay deposits. The proportion of fine material generally increases toward the coast, dividing the Basin into Forebay and pressure areas. Consequently, most surface water recharge is through the coarser, more interconnected and permeable forebay deposits. Strata in this Basin are faulted and folded and may show rapid changes in grain size. The Newport-Inglewood fault zone parallels the coastline and generally forms a barrier to groundwater flow. Erosional channels filled with permeable alluvium break this barrier in selected locations called “Gaps”. In addition to this geologic feature, increased pumping from inland municipal wells causes the coastal gaps at Talbert, Bolsa, Sunset, and Alamitos to be susceptible to seawater intrusion. The sediments containing easily recoverable fresh water extend to about 2,000 feet in depth near the center of the Basin. Although water-bearing aquifers exist below that level, water quality and pumping lift make these materials economically unviable at present. Well yields range from 500 to 4,500 gallons per minute, but are generally 2,000 to 3,000 gallons per minute.

Upper, middle, and lower aquifer systems are recognized in the basin. The upper aquifer system has an average thickness of about 200 to 300 feet and consists mostly of sand, gravel, and conglomerate with some silt and clay beds. Generally, the upper aquifer system contains a lower percentage of water-bearing strata in the northwest and coastal portions of the area where clays and clayey silts dominate. Accordingly, recharge from the surface to the groundwater basin may be minor in these areas. Recharge to the upper aquifer system occurs primarily in the northeastern portions of the Basin. With the exception of a few large system municipal wells in the cities of Garden Grove, Anaheim, and Tustin, wells producing from the shallow aquifer system predominantly have industrial and agricultural uses. Production from the shallow aquifer system is typically about five percent of total Basin production.

The middle aquifer system, also known as the “principal” aquifer system, includes the lower Pleistocene Coyote Hills and San Pedro Formations, which have an average thickness of 1,000 feet and are composed of sand, gravel, and a minor amount of clay. The primary recharge of the middle aquifer system is derived from the Santa Ana River channel in the northeast of the County. The middle aquifer system provides 90 to 95 percent of the groundwater for the Basin.

Increasing accumulated overdraft of the Basin since the late 1990s has prompted increased evaluation of the Basin’s yield and how the yield can be optimized through projects and programs. As a response to various factors, including a series of years with below average precipitation and the increased accumulated overdraft, in 2003 OCWD reduced the BPP to decrease pumping from the Basin. Currently, groundwater is produced from approximately 500

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active wells within the Basin, approximately 300 of which produce less than 25 afy. Groundwater production from approximately 200 large capacity or large system wells operated by the 21 largest water retail agencies account for an estimated 97 percent of the total production. All but three of these large retail agencies, the cities of Anaheim, Fullerton, and Santa Ana, are within the MWDOC service area.

Working closely with OCWD, MWDOC has developed a water balance model, which incorporates OCWD's operating policies in managing the Basin. It is used to project the groundwater production for each producer in the Basin based on a range of assumptions provided by OCWD. Most of the assumptions involve replenishment supplies to the Basin. Historical groundwater flow was generally toward the ocean in the southwest, but modern pumping has caused groundwater levels to drop below sea level inland of the Newport-Inglewood fault zone. This trough-shaped depression encourages seawater to migrate inland, which if unchecked, could contaminate the groundwater supply. Strategic lines of wells in the Alamitos and Talbert Gaps inject imported and reclaimed water to create a mound of water seaward of the pumping trough to protect the Basin from seawater intrusion. In addition to operating the percolation system, OCWD also operates the Talbert Barrier in Fountain Valley and Huntington Beach and participates in the financing operation of the Alamitos Barrier in Seal Beach and Long Beach. The barriers help prevent seawater intrusion and also help refill the Basin (MWDOC RUWMP 2005).

**Recharge Supplies.** Sources of recharge water include Santa Ana River base flow and storm flow, Santiago Creek flows, imported supplies purchased from MWD, supplemental supplies from the upper Santa Ana River watershed, and purified water primarily from the Groundwater Replenishment System (GWRS). The GWRS - the world's largest wastewater purification system for indirect potable reuse - is located in Fountain Valley and takes highly treated wastewater and purifies it. The recycled supply is then used to recharge the Basin through spreading grounds along the Santa Ana River. The OCWD Groundwater Management Plan Update can be found in the electronic version of Appendix E of this report.

**Basin Overdraft.** DWR has not identified the Basin as overdrafted. OCWD's Act defines annual basin overdraft to be the quantity by which production exceeds the natural replenishment of groundwater supplies during a water year. Efforts undertaken by OCWD to eliminate long-term overdraft in the Basin are described in OCWD's Master Plan and Groundwater Management Plan Update.

The accumulated overdraft is defined by the Act to be the quantity of water needed in the Basin Forebay to prevent landward movement of seawater into the fresh groundwater body. However, seawater intrusion control facilities have been constructed and are planned for construction since the Act was written and have been effective in preventing landward

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movement of seawater into the fresh groundwater body. These facilities allow greater utilization of the Basin's storage capacity. In addition, spreading grounds adjacent to and within the Santa Ana River are managed to maintain groundwater levels.

#### **4.2.2 Laguna Canyon Groundwater Basin**

Although the District is not currently planning for the utilization of the Laguna Canyon Basin supply in the foreseeable future, it is mentioned here because it may be reconsidered in the future to augment the District's supply portfolio. This supply is not included in supply availability quantities in this UWMP.

The Laguna Creek watershed lies in the San Joaquin Hills of southern Orange County. The drainage area of approximately 5,410 acres includes the Laguna Creek and Niguel Creek basins and is the largest stream basin to drain exclusively from the San Joaquin Hills into the ocean. The drainage basin is roughly 6.5 miles long and averages 1.5 miles wide between its boundaries. The upper or northern half of the basin is relatively wide with low subdued hills, whereas the lower half is narrow with steep slopes forming Laguna Canyon. Elevations reach 1,000 feet above sea level in parts of the drainage basin. The groundwater basin lies along the Canyon bottom following Laguna Canyon Road.

The average annual rainfall is about 12 inches at Laguna Beach at the mouth of Laguna Creek and at times rainfall in the San Joaquin Hills is sufficient to cause sharp, damaging floods along Laguna Creek. But under average year conditions, the drainage basin is dry with only sufficient water discharge to reflect losses from groundwater sources and urban runoff. It is estimated that the groundwater basin is capable of supplying 200 to 300 afy of potable water (District, 2005).

To augment basin yield, the District's Laguna Creek Groundwater Recovery Project analyzed the feasibility of reclaiming and treating local runoff and stormwater in Laguna Creek. Runoff would be treated and recharged into Laguna Canyon Groundwater Basin through injection wells and extracted for use. A number of wells would be drilled throughout the Basin with water conveyed to a storage reservoir then a treatment plant. Treatment of the supply would depend on the final determination of the use of the water that could include blending with recycled water, direct non-potable uses, and potable uses.

#### **4.2.3 Groundwater Recently Pumped**

The District has not pumped groundwater since the 1940's, as presented in Table 18. Historically, the District pumped and conveyed the supply to the service area, but this was discontinued when MWD imported supplies became available. As discussed under future supply projects, the District plans to utilize Basin groundwater supplies in the future.

Table 18						
Groundwater — Volume Pumped by LBCWD (acre-feet)						
Basin Name	Metered or Unmetered	2006	2007	2008	2009	2010
Orange County Basin		0	0	0	0	0
<b>Total Groundwater Pumped</b>		0	0	0	0	0
<b>Groundwater as a Percent of Total Water Supply</b>		0	0	0	0	0

#### 4.2.4 Groundwater Projected to be Pumped

Table 19 presents the amount of groundwater projected to be pumped by the District. The projected amount of 2,025 afy from the Orange County Basin is based on the court-approved quantity of supply available to the District. The District is exploring options that may include either constructing new production and conveyance facilities or exchanging supplies with other OCWD/MWDOC member agencies.

Because the District is maximizing the resources available to it to reduce its dependence on imported water supplies, the reliability of its groundwater supply is included in the reliability analyses. Groundwater levels fluctuate depending on numerous factors including Basin storage and Santa Ana River water capture, which are somewhat influenced by climatic conditions. During past single dry year and multiple dry year events, groundwater supplies were available in this non-adjudicated Basin, but at a higher price (BEA). The availability of the District's groundwater supply is based on the court-approved quantity of 2,025 afy.

Table 19					
Groundwater — Volume Projected to be Pumped by LBCWD (acre-feet)					
Basin Name	2015	2020	2025	2030	2035
Orange County Basin	0	2,025	2,025	2,025	2,025
<b>Total Groundwater Pumped</b>	0	2,025	2,025	2,025	2,025
<b>Percent of Total Water Supply</b>	0	24%	24%	24%	24%

### 4.3 Transfer Opportunities

MWD, MWDOC, and OCWD have and will continue to explore opportunities for water exchanges and transfers that benefit the region. These opportunities are discussed under Future Water Projects at the end of this section. Water transfer opportunities using MWDOC and MWD facilities, as well as in-lieu options with OCWD and others are possible.

The District has several connections with neighboring water agencies that can be used as points of water transfer during short term and long term needs. These connections were designed for emergency purposes only and not for permanent transfers. Table 20 presents quantities that have been transferred in the past and could be transferred again on an emergency basis to adjoining purveyors. Since the District is a joint partner with several other agencies for imported water transmission facilities, opportunities for transfer exist using the two transmission mains. In the past, for example, the jointly owned Coast Supply Line, which supplies the District, City of Newport Beach, and IRWD, was used to deliver approximately eight cubic feet per second (cfs) of water to the District and South Coast Water District from the City of Newport Beach during a seven-day shutdown of MWD’s Diemer Treatment Plant in Yorba Linda.

<b>Table 20</b>			
<b>LBCWD Transfer and Exchange Opportunities</b>			
<b>Transfer Agency</b>	<b>Transfer or Exchange</b>	<b>Short Term Quantities</b>	<b>Proposed Volume (afy)</b>
Moulton Niguel Water District (6-inch)	Transfer	1 cfs	None
Irvine Ranch Water District (18-inch)	Transfer	5 cfs	None
South Coast Water District (6-inch)	Transfer	1 cfs	None
El Toro Water District (6-inch)	Transfer	1cfs	None
Newport Beach (via Coast Supply Line)	Transfer	4 cfs	None
		<b>Total</b>	0

Similar opportunities exist using the Aufdenkamp Transmission Main for transfers between IRWD, SMWD, SCWD, and the District. MWDOC spearheaded the South Orange County Water Reliability Study, which identified the potential for emergency exchanges between these agencies. No long-term transfers or exchanges are identified at this time for the District.

#### **4.4 Desalination Water Opportunities**

MWDOC completed the South Orange County Water Reliability Study, which examined and evaluated options for providing greater water supply and system reliability. A recommendation from the study is to develop ocean water desalination. Such a project would increase reliability to the area that is almost entirely dependent on imported water.

##### **4.4.1 South Orange Coastal Ocean Desalination Project**

The District committed funds towards studying the feasibility of a regional ocean desalination plant in Dana Point called the South Orange Coastal Ocean Desalination Project. Four other agencies: SCWD, Moulton Niguel Water District (MNWD), City of San Juan Capistrano, and City

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of San Clemente Utilities Division are also participating in the study of a 25 mgd regional plant. This facility would produce a new water supply of 12,000 to 24,000 afy, which would not only improve system reliability but would improve water quality by providing a lower level of total dissolved solids (TDS). A lower level TDS supply also benefits recycled water opportunities by improving the quality of the wastewater effluent being treated. MWDOC is studying the project location adjacent to San Juan Creek at Doheny State Beach. The project showed favorable enough results to pursue a pilot plant to further test the feasibility of a larger project using a subsurface intake system.

The District is planning for a reliable quantity of 1,000 afy for its use once the plant is fully operational. Current projections are for the desalinated supply to be available to the District by 2020.

#### **4.4.2 Huntington Beach Seawater Desalination Project**

Another ocean water desalination project being investigated is the Huntington Beach Seawater Desalination Project. This 50 mgd desalination project, located on property adjacent to the AES Generating Station on Pacific Coast Highway, is planned to be operational by 2015. The District is planning for a reliable quantity of 1,000 afy for its use once the plant is fully operational.

Because of the uncertainty associated with the permitting and construction of major desalination facilities, only 1,000 afy is incorporated into the assumption of desalination supply for the LBCWD. This 1,000 afy could be from either of the two facilities, whichever is more cost effective for the District.

### **4.5 Recycled Water Opportunities**

Recycled water provides a reliable and drought proof water source and could greatly reduce the region's reliance on imported supplies. Currently the District does not utilize or serve directly applied recycled water to any of its customers. However, the District has been working closely with MNWD to provide up to 400 afy to the northern District service area for irrigation use along Laguna Canyon Road. This supply will be available from new recycled water conveyance facilities to be constructed adjacent to El Toro Road. It is anticipated that 100 afy of this supply will be available to the District starting in 2013, increasing by 100 acre-feet each year up to 400 afy.

#### **4.5.1 Wastewater System Description and Wastewater Disposal**

Wastewater generated within the District's service area is collected and conveyed by the City of Laguna Beach to South Orange County Wastewater Authority's (SOCWA) regional Coastal Treatment Plant (CTP). SOCWA is a joint powers authority formed to provide operational

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efficiency through consolidation and is comprised of 10 member agencies including the City of Laguna Beach, EBSD, and SCWD.

The 6.7 mgd CTP is located along Aliso Creek south of the District. The facility provides secondary treatment for all wastewater collected along the coast between Dana Point and Emerald Bay and has an average daily production of 3.47 mgd. The treatment unit operations at the plant are screening, aerated grit removal, primary clarification, activated sludge aeration, and secondary clarification. An average of 3.05 mgd of secondary treated wastewater is discharged into the Pacific Ocean through the Aliso Creek Ocean Outfall (SOCWA, 2011).

A portion of the secondary effluent, approximately 0.55 mgd, is reclaimed for irrigation use from the Advanced Wastewater Treatment Plant and used in the SCWD service area. The recycled water supply is produced by SOCWA for SCWD. The tertiary treatment process consists of chemical addition, coagulation, flocculation, filtration, and chlorine disinfection. The rated capacity of the tertiary treatment facilities is 4.2 mgd.

In addition to the CTP, the Aliso Creek Ocean Outfall receives treated effluent from the SOCWA Joint Regional Plant (JRP), Los Alisos Water Reclamation Plant, El Toro Water Recycling Plant, and treated groundwater and brine discharges from the Irvine Desalter Project. The JRP is owned by SOCWA and MNWD and treats sewage generated in the MNWD service area. A portion of the JRP secondary effluent is recycled for irrigation, including the District's future recycled water supply. Additional information on this facility can be found in MNWD's 2010 UWMP.

#### **4.5.2 Current Recycled Water Uses**

Due to the scattered and few locations of large irrigated turf areas within the District service area and the distance to the source of recycled water at SOCWA's CTP, the District does not utilize recycled water generated from its service area. Quantities of wastewater generated are generally proportional to the population and water use in the service area. Estimates of wastewater flows from the service area are presented in Table 21. Current wastewater flow from the District's service area is approximately 1.82 mgd (range of 1.72 to 1.92 mgd not including 85,000 gpd from EBSD) (SOCWA, 2011). Flows were projected using population projections from Table 2 and assumed a unit flow coefficient of 90 gpcd. It is assumed that wastewater generated within the District service area treated to recycled water standards is proportionate to the total amount recycled from the CTP versus the balance discharged to the ocean (see Table 21).

Table 21							
Recycled Water — Wastewater Collection and Treatment							
Type of Wastewater	2005	2010	2015	2020	2025	2030	2035
Wastewater Collected and Treated in Service Area <sup>1</sup> (mgd)	1.80	1.82	1.95	1.98	1.99	2.00	2.01
Volume that Meets Recycled Water Standard <sup>2</sup>	NA	16%	25%	35%	44%	53%	63%

<sup>1</sup>Based on population from Section 2 and unit flow coefficient of 90 gpcd.

<sup>2</sup>Percent of effluent recycled currently is 16%; 63% at 2035; evenly distributed for years between. 2010 and 2035 data provided by SOCWA, 2011.

Table 22 presents quantities of recycled water that may not be recycled from the CTP, in addition to its disposal method. Although wastewater generated from the District service area is combined with other flows in the collection system, it was assumed that the amount recycled is proportional to the total amount of effluent recycled by SOCWA versus what SOCWA discharges to the ocean.

Table 22							
Recycled Water — Non-recycled Wastewater Disposal (mgd) <sup>1</sup>							
Method of Disposal	Treatment Level	2010	2015	2020	2025	2030	2035
Ocean Outfall	Secondary	3.05	2.74	2.43	2.12	1.81	1.50
<b>Total</b>		3.05	2.74	2.43	2.12	1.81	1.50

<sup>1</sup>2010 and 2035 data provided by SOCWA and were evenly distributed for the years between.

### 4.5.3 Potential and Projected Uses of Recycled Water

Tables 23 presents the future direct uses of recycled water in the District service area. The amount of 100 afy of recycled water supply is planned for delivery to the District, after facilities are constructed by 2013, increasing by 100 acre-feet each year up to 400 afy. The five-year average District utilization of recycled water by 2015 will be 60 afy and 380 afy by 2020. The District plans to utilize excess recycled water resulting from the expansion of the MNWD recycled water treatment facilities; this flow is currently discharged to the ocean. Recycled water will be provided along El Toro Road to existing irrigation demands. One to five miles of transmission mains will be constructed to serve the following customers.

- California Cove Homeowner’s Association
- Caltrans District 12
- Terraces at Canyon Hill
- Southern California Edison

- Club Laguna/Shea Properties
- City of Laguna Beach

Table 23							
Recycled Water — Potential Future Use (afy)							
User Type	Description	Feasibility	2015	2020	2025	2030	2035
Agricultural Irrigation		No	0	0	0	0	0
Landscape Irrigation	From Moulton Niguel Water District	Yes	200	400	400	400	400
Commercial Irrigation		No	0	0	0	0	0
Golf course Irrigation		No	0	0	0	0	0
Wildlife Habitat		No	0	0	0	0	0
Wetlands		No	0	0	0	0	0
Industrial Reuse		No	0	0	0	0	0
Groundwater Recharge		No	0	0	0	0	0
Indirect Potable Reuse		No	0	0	0	0	0
Other (User Type)		No	0	0	0	0	0
<b>Total</b>			200	400	400	400	400

Because of the District’s distance from the CTP and the expense of moving recycled water from the plant to the District’s service area, the District’s 2005 UWMP did not project any use of recycled water. This is reflected in Table 24.

Table 24		
Recycled Water — 2005 UWMP Use Projection Compared to 2010 Actual		
Use Type	2010 Actual Use	2005 Projection for 2010 <sup>1</sup>
Agricultural Irrigation	0	0
Landscape Irrigation	0	0
Commercial Irrigation	0	0
Golf course Irrigation	0	0
Wildlife Habitat	0	0
Wetlands	0	0
Industrial Reuse	0	0
Groundwater Recharge	0	0
Indirect Potable Reuse	0	0
Other (User Type)	0	0
<b>Total</b>	0	0

#### 4.5.4 Recycled Water Optimization

Because recycled water may be made available to the District from MNWD, the District can optimize the direct use of recycled water. It will provide specific methods to encourage recycled water use, as indicated in Table 25. These efforts include assurances of a highly reliable irrigation supply as well as financial incentives in the form of reduced water rates.

Table 25						
Methods to Encourage Recycled Water Use						
Actions	Projected Results (acre-feet)					
	2010	2015	2020	2025	2030	2035
Financial Incentive	0	200	400	400	400	400
<b>Total</b>	0	200	400	400	400	400

#### 4.6 Future Water Projects

Due to the reliance on imported water, the District is pursuing its Santa Ana River Basin groundwater supply project. In addition, MWD and MWDOC are pursuing water supply projects and programs, which will increase the reliability of imported supplies and augment these supplies with regional projects.

##### 4.6.1 LBCWD Projects

As discussed previously, the District is expanding its supply portfolio to utilize its adjudicated water right to groundwater, and integrate a new recycled water supply for non-potable uses. In addition, the District is contributing to the feasibility of two regional desalination projects of which it is anticipated that one will supply water to the District. These future water supplies are presented in Table 26.

##### 4.6.2 Regional Agency Projects

The MWDOC 2010 RUWMP discusses a number of water supply opportunities in Orange County undertaken by MWDOC to enhance supplies, including transfers and exchanges, desalination, and further uses of recycled water. MWD's 2010 RUWMP discusses opportunities to enhance and maintain imported supplies in conjunction with its 2010 Integrated Water Resources Plan Update.

Table 26								
Future LBCWD Water Supply Projects (afy)								
Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal Year Supply	Single Dry Year Supply	Multiple Dry Years		
						First Year Supply	Second Year Supply	Third Year Supply
Lower Santa Ana River Groundwater Basin	Underway	2020	Institutional and Legal	2,025	2,025	2,025	2,025	2,025
Recycled Water	Underway	2013	None	400	400	400	400	400
Dana Point or Huntington Beach Ocean Desalination	Underway	2020	Permitting and Costs	1,000	1,000	1,000	1,000	1,000
<b>Total</b>				<b>3,425</b>	<b>3,425</b>	<b>3,425</b>	<b>3,425</b>	<b>3,425</b>

**MWD**

According to MWD’s 2010 RUWMP, it is continuing to diversify its supply resource mix to increase long-term regional water supply reliability. These efforts have focused on the following.

- Pursuing long-term storage solutions for the Delta
- Developing storage programs related to the SWP and Colorado River
- Developing storage and groundwater management programs within Southern California
- Increasing water use efficiency
- Increasing water recycling, groundwater recovery, and seawater desalination
- Developing water supply management programs outside of the region

Detailed descriptions of numerous projects to implement these goals are provided in MWD’s 2010 RUWMP, along with supply quantities anticipated under normal and dry year conditions. Under MWD’s current supply programs, it has 3.485 million acre-feet available by 2015, increasing to 3.814 by 2035. Under development is an additional 0.588 million acre-feet by 2015 and 1.051 million acre-feet by 2035.

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## MWDOC

In Orange County, there are three proposed ocean desalination projects that could serve MWDOC and its member agencies: Huntington Beach Seawater Desalination Project, South Orange Coastal Ocean Desalination Project (in Dana Point), and Camp Pendleton Seawater Desalination Project. These projects are discussed in MWDOC's 2010 Regional UWMP and are summarized here. The Huntington Beach and Dana Point projects were discussed above because the District is participating in these projects.

The project under development in Camp Pendleton, located adjacent to the Santa Margarita River, is being studied by the San Diego County Water Authority. This initial 50 or 100 mgd plant would be expandable in 50 mgd increments up to 150 mgd. The project is currently in the feasibility study stage with numerous studies being conducted. MWDOC and south Orange County agencies are maintaining a potential interest in the project but are limited currently to fact finding and monitoring of the project (MWDOC, 2011). In addition to desalination projects, MWDOC is supporting its member agencies in pursuing local projects or projects with value to its member agency.

### 4.7 Climate Change Impacts

Climate change and or greenhouse gas (GHG) emissions are considered in city and county general plans, California Environmental Quality Act documents, and integrated regional water management plans (IRWMP). By considering potential water supply impacts resulting from climate changes in its UWMP, the District integrates this UWMP with these documents and supports water management functions. The District is a member of the IRWMP for South Orange County Watershed Management Area; the South Orange County Watershed Management Area IRWMP document contains or will contain climate change objectives. Information on the vulnerability of its water supplies and service area water demands is provided here to aid the District in preparing for and adapting to expected climate change impacts. Water conserved under the District's water use efficiency program has a direct correlation with reduced GHGs as energy is required to move, treat, use, and discharge water.

#### 4.7.1 Imported Supply and Service Area Impacts

According to the Public Policy Institute of California,

“...Air temperatures are projected to increase throughout the state over the coming century. Sea level is expected to rise 39 to 55 inches by 2100, and the frequency of extreme events such as heat waves, wildfires, floods, and droughts is expected to increase. Higher temperatures will result in more rain and less

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snow, diminishing the reserves of water held in the Sierra Nevada snowpack.”(PPIC, 2011)

The following impacts to the District’s imported supply are anticipated, resulting in reduced SWP deliveries and supply outages. MWD is anticipating these impacts and is diversifying its supply portfolio and increasing groundwater banking to compensate for reduced SWP deliveries.

- An increase in average surface temperatures of 5.5 to 10.4 degrees Fahrenheit is anticipated by the end of the century, resulting in up to four times as many heat wave days in urban centers.
- Heat waves will increase in frequency, magnitude, and duration.
- Longer, drier, and more frequent periods of droughts anticipated with up to 2.5 times the number of critically dry years by the end of the century. Modest changes in precipitation can have a large impact on runoff. Lower inflows will make it more difficult to repel salinity in the Sacramento River - San Joaquin River Delta (Delta).
- About 25 to 40 percent of the Sierra snowpack may be lost by 2050. Higher temperatures increase the ratio of rain to snow, accelerate the rate of spring snowmelt, and shorten the overall snowfall season, leading to more rapid and earlier seasonal runoff.
- Over 55 percent increase in risk of large wildfires is anticipated. Fires result in changes in vegetation and eventually a reduction in water supply and storage capacity in the Sierras.
- More severe (e.g., frequency, intensity) and warmer winter storms are likely to occur, increasing runoff and flooding which could cause Delta levee failure.
- Increased tidal salinity intrusion to the Delta from sea level rise, lower inflows, and Delta levee failures. Without major changes to in-Delta facilities, more fresh water will be needed to repel seawater and maintain water quality standards, especially during drier years.
- Degraded water quality of Delta supplies is anticipated due to changing temperatures, flows, runoff rates and timing, and the ability of watersheds to assimilate wastes and pollutants. Lower Delta inflows during certain times of the year will degrade water quality by increasing temperatures and minimizing the dilution effects of runoff and wastewater discharges. Warmer water can accelerate some biological and chemical processes, increasing growth of algae and microorganisms. Higher winter flows will increase contaminant loadings from nonpoint sources. Intense rainfall following wildfires can degrade water quality. (Santa Barbara, 2009)

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Since winter snowpack in the Sierra Nevada functions as a major water storage system, this will have serious consequences to annual supply availability in all systems that rely on the runoff. These impacts to statewide water supplies originating from the Delta watershed, as well as current flood control practices on Sierra Nevada reservoirs, will reduce MWD's supplies from the SWP. In addition, flooding in the Delta could have devastating impacts on the reliability of Delta exports with supply outages anticipated for up to one year.

Colorado River flows are anticipated to decrease by 5 to 20 percent in the next 40 years, according to Brad Udall, director of the University of Colorado Western Water Assessment. Earlier runoff and lower flows from the Rocky Mountains later in the year are also anticipated (Zeilinski, 2010).

#### **4.7.2 Sea Level Rise**

The Pacific Institute analyzed impacts from sea level rise of 55 inches and indicated that the most serious impacts to Laguna Beach will be along Main Beach and downtown, just south of the El Moro Visitor Center/campground in Crystal Cove State Park, and south of the District service area along Aliso Creek and Country Club Road along the SOCWA Aliso Creek ocean outfall alignment. Flooding and/or erosion along the coast, depending on specific areas of impact, will affect water and sewer pipelines and pumping facilities.

#### **4.7.3 Water Demands**

Climate change is anticipated to impact water demands through more frequent and more intense heat waves and extended dry periods, which will cause increases in demands in the District's service area. This is evident in demand patterns associated with the first dry water year. It is not known yet if changes in precipitation patterns will offset these increases. In addition, with drier conditions, wildfires in the San Joaquin Hills will likely be more frequent, thus increasing demands for District water supplies used to contribute to suppression. DWR recommends for long-term planning that local agencies assume a 20 percent increase in the frequency and duration of future dry conditions. On a positive note, it may be likely that with the changes to climate patterns, more monsoon conditions will occur in Southern California, resulting in precipitation in the summer, reducing outdoor landscaping demands.

#### **4.7.4 Groundwater Supply**

Due to sea level rise, the District's future groundwater supplies will have increased pressure on the seawater barriers, perhaps requiring more injection supply to prevent contamination of Orange County Basin groundwater supplies. OCWD's conjunctive use management of the Basin will take on even greater importance as increased quantities of surface water will likely be imported to recharge the Basin, and as more frequent and more intense heat waves and extended dry periods deplete resources and increase demands for those resources. With the

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reduced Sierra snowpack, groundwater storage throughout the state will be more important as early thaws will require new storage facilities to be made available.

Because climate change is such a gradual process, it can be difficult to distinguish these changes from the usual variability in supplies and demands. However, MWD is increasing its water supply options to compensate for SWP and Colorado River reductions. The District will continue to adapt to changing conditions within its service area, as well as maintain its aggressive water use efficiency efforts to reduce GHGs.

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## **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 Delta. A long term Delta solution is needed. Because of the potential for water shortages, water allocations for MWDOC were imposed by MWD. These water shortage allocations were then imposed on MWDOC member agencies, including LBCWD. The District's imported water supply is 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 adopted a water shortage contingency plan to plan for the response 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 District is currently dependent on imported water supplies. Most of the supply has historically come from the Colorado River, although improvements were made to MWD's system to allow greater flexibility in conveying northern California supplies from the SWP to Lake Mathews. The imported water conveyed from the Delta has been curtailed in recent years due to drought conditions in the Feather River watershed and court ordered Delta pumping restrictions. As a result, MWD has aggressively pursued and obtained additional supplies to augment these two sources for its entire service area and is continuing to acquire additional supplies.

#### **5.1.1 Influencing Factors**

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

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

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

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

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

Legal, environmental, and water quality issues may have impacts on MWD supplies, as summarized in Table 27. MWD has indicated 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.

Table 27 (DWR Table 29)		
Factors Resulting in Inconsistency of Supply		
Water Supply Sources	Limitation Quantification	Information Regarding Legal, Environmental, Water Quality, or Climate Factors
Imported MWD Supply	None	<b>Environment/Legal and Climate.</b> 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.
Orange County Basin	None	Groundwater is relatively consistent in the Basin with fluctuating groundwater levels somewhat reflecting climatic conditions. No legal, environmental, water quality, or climatic factors result in an inconsistency in the availability of this future supply.

The primary constraint to the District on the availability of imported supplies during times of supply shortages is the cost, particularly when MWD’s Water Supply Allocation Plan is in effect. As previously discussed, in terms of quantity and reliability, MWD has an extensive supply augmentation program to assure its member agencies that imported supplies will be 100 percent reliable from 2015 through 2035.

### 5.1.2 Water Quality

The District imports water from MWD through MWDOC. 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 protection of source waters are handled through changed water treatment protocols or blending. These practices increase costs to the District and/or reduce operational flexibility and safety margins to MWD. MWD anticipates no significant reductions in water supply availability from new sources due to water quality concerns (MWD, 2010, p.4-1). A description of the water quality of MWD’s supplies can be found in its 2010 RUWMP.

The District’s Basin groundwater supply is managed by the OCWD. OCWD has an extensive program to protect Basin water quality, which includes groundwater monitoring, participating in and supporting regulatory programs, remediation projects, working with groundwater producers, and providing technical assistance. A groundwater protection policy was adopted in 1987 in recognition of the serious threat posed by groundwater contamination (OCWD, 2009). Efforts have been focused on managing salinity and nitrates, along with synthetic organic contaminants. According to the OCWD Groundwater Management Plan, the water from this aquifer continues to be of high quality. As presented in Table 28, no water quality impacts are anticipated with the imported water supply or with the future Basin groundwater supply.

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

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## 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 due to climate, hydrologic conditions that define year types were determined. The years identified 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	Supply Source	Base Years <sup>1</sup>
Average/Normal Water Year	Imported MWD	Average 1922 to 2004
Single Dry Year	Imported MWD	1977
Multiple Dry Water Years	Imported MWD	1990 to 1992

<sup>1</sup> MWD base years from MWDOC 2010 RUWMP.

**Average/Normal Water Year:** The normal year most closely represents median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields. MWD used 1922 through 2004 to establish this normal year, which reflected 2007 District demands and purchases.

**Single Dry Water 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.

**Multiple Dry Water 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 to 1993 as the driest multiple years since 1922 when the least amount of imported water was available.

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 can 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 (MWDOC, 2011)

Table 30 summarizes historical District water demands for the base water years. Because the District has been dependent on imported supplies, 100 percent of its demands were met with MWD supplies. 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 were actually reduced during the multi-year drought by the District’s water use efficiency outreach programs. The per capita demands during the base water years were used as normalized demands with the effects of growth removed. The per capita dry year demands were compared against average year per capita demand.

<b>Table 30 (DWR Table 28)</b>					
<b>Supply Reliability — Historical District Purchases</b>					
<b>Availability<sup>1</sup></b>	<b>Average/ Normal Water Year (2007)</b>	<b>Single Dry Water Year (2000)</b>	<b>Multiple Dry Water Years</b>		
			<b>Year 1 (1990)</b>	<b>Year 2 (1991)</b>	<b>Year 3 (1992)</b>
<b>Imported Water Purchases: acre-feet</b>	4,607	4,977	4,710	4,288	3,678
<b>Imported Water Purchases: gpcd</b>	192	217	216	194	163
<b>Percent of Normal Year Per Capita<sup>2</sup></b>	100%	113%	112%	101%	85%

<sup>1</sup>Supply data reflects purchases during each of the base years in Table 29 using 2000 as the single dry year.

<sup>2</sup>Percent of the dry year supply compared with the average or normal year supply availability based on per capita demands to normalize purchases.

Because the District has only used imported water supplies, the data in Table 30 reflect the effects of dry year conditions. 2000 was used for single dry year data because 1977 data were archived and 2000 represents the greatest supply requirements (quantity and per capita) over the previous 20 years, which is indicative of the first year of dry conditions. The multiple dry years reflect the same first year increase in demands, followed by a decrease to almost normal year levels in the second year, and below normal year levels in the third year as water use efficiency outreach efforts take effect.

Table 31 presents MWD’s supply capability during multiple dry years as compared with its average year supplies. The historical multiple dry year scenario was applied to the next three years (2011 through 2013). Responses to an actual drought or the continuation of the recent

drought would follow 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 Use Efficiency & Water Supply Shortage Ordinance discussed later in this section. Details of the WSDM Plan can be found in Appendix A.4 of MWD’s 2010 RUWMP. The District’s shortage contingency program is provided in Appendix F.

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

<sup>1</sup>From MWD 2010 RUWMP, Table 2-11.

<sup>2</sup>From MWD 2010 RUWMP, Table 1-6.

The District’s water supply and demand conditions during each of the water year types for the next twenty-five years is discussed below.

### 5.2.2 District Capabilities: Normal Year

Average water year availability for the District is compared to projected water demands through 2035 in Table 32. Although data in Tables 30 and 31 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 all future water supplies, as presented individually in Table 16, is expected to be 100 percent; these quantities were summarized for the following reliability analysis tables. When compared with total projected water demands from Table 14, data summarized in Table 32 indicate that supplies will be available to meet District demands during a normal water year. As discussed in Section 2, the District has only a few vacant lots available for low-density residential development, resulting in very little increase to demands, offset by the anticipated target conservation savings. Even without the 20 percent target reduction in demands associated with additional conservation savings as presented in Table 32, and with the use of recycled water, demands can be met with existing supplies.

Table 32					
Supply and Demand Comparison — Normal Year (acre-feet)					
	2015	2020	2025	2030	2035
<b>Supply Totals (Table 16)</b>	5,130	8,355	8,355	8,355	8,355
<b>Target Demand Totals (Table 14)</b>	4,827	4,420	4,456	4,483	4,505
<b>Difference</b>	303	3,935	3,899	3,872	3,850
<b>Difference as Percent of Supply</b>	5.9%	47%	47%	46%	46%
<b>Difference as Percent of Demand</b>	6.3%	89%	88%	86%	85%

### 5.2.3 District Capabilities: 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 for each source as summarized in Table 30. A 6.6 percent “bump” in the combined Total Water Use from Table 14, including wholesale sales to EBSD, was added to reflect a typical increase in demands associated with the first year of drier weather, before additional conservation outreach is implemented. 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 to meet the bumped increase in demands. MWD has documented that it is 100 percent reliable for single dry year demands, with the bump percentage of 6.6 percent.

Table 33					
Supply and Demand Comparison — Single Dry Year(afy)					
	2015	2020	2025	2030	2035
<b>Supply Totals</b>	5,177	8,402	8,402	8,402	8,402
<b>Target Demand Totals (with Bump)<sup>1</sup></b>	5,145	4,712	4,750	4,779	4,803
<b>Difference</b>	32	3,690	3,652	3,623	3,599
<b>Difference as % of Supply</b>	0.6%	44%	43%	43%	43%
<b>Difference as % of Demand</b>	0.6%	78%	77%	76%	75%

<sup>1</sup>Single dry year demands were increased by 6.6 percent to reflect drier weather conditions causing an increase in demands. “Bump” percent reflects county average provided by MWDOC, 2010.

### 5.2.4 District Capabilities: Multiple Dry Years

The projected multiple dry year supply is based on the availability of water for each source presented in Table 16 but imported supplies are at the historical purchase levels of Table 30.

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Quantities of purchased water above historical multiple dry year levels were added to meet potential 2015 demands, thus reflecting the availability of imported supplies. This is important because, as discussed below, the second and third year of a drought reflect additional District outreach efforts reducing demands; historical purchases reflect these water use efficiency measures, not the availability of supply.

Water demands were analyzed for this multiple dry year scenario. As was done 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 can then range from an increase or a decrease 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 has recently developed very aggressive water use efficiency practices, as reflected in the demands during the recent local dry period of 2007 to 2009.

A review of District data indicates that during this recent 2007 to 2009 dry period, demands increased three percent in the first year compared with the previous year. The second and third years decreased from 2006 levels by seven percent, reflecting the strong public outreach program the District has in place. Therefore, the MWDOC provided average “bump” of 6.6 percent is only applied to the first year of the multiple year scenario. 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. MWD has documented that it is 100 percent reliable for multiple dry year demands, with the bump percentage of 6.6 percent.

### **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.

Table 34						
Supply and Demand Comparison — Multiple Dry Year Events(afy)						
		2015	2020	2025	2030	2035
<b>Multiple Dry Year First Year Supply</b>	<b>Supply (Tables 16 and 30)</b>	4,910	8,135	8,135	8,135	8,135
	<b>Additional Supply <sup>1</sup></b>	235	0	0	0	0
	<b>Demand Totals <sup>2</sup></b>	5,145	4,712	4,750	4,779	4,803
	<b>Difference</b>	0	3,423	3,385	3,356	3,332
	Difference as % of Supply	0.0%	42%	42%	41%	41%
	Difference as % of Demand	0.0%	73%	71%	70%	69%
<b>Multiple Dry Year Second Year Supply</b>	<b>Supply (Tables 16 and 30)</b>	4,488	7,713	7,713	7,713	7,713
	<b>Additional Supply <sup>1</sup></b>	339	0	0	0	0
	<b>Demand Totals</b>	4,827	4,420	4,456	4,483	4,505
	<b>Difference</b>	0	3,293	3,257	3,230	3,208
	Difference as % of Supply	0.0%	43%	42%	42%	42%
	Difference as % of Demand	0.0%	74%	73%	72%	71%
<b>Multiple Dry Year Third Year Supply</b>	<b>Supply (Tables 16 and 30)</b>	3,878	7,103	7,103	7,103	7,103
	<b>Additional Supply <sup>1</sup></b>	949	0	0	0	0
	<b>Demand Totals</b>	4,827	4,420	4,456	4,483	4,505
	<b>Difference</b>	0	2,683	2,647	2,620	2,598
	Difference as % of Supply	0.0%	38%	37%	37%	37%
	Difference as % of Demand	0.0%	61%	59%	58%	58%

<sup>1</sup> 2015 supplies were increased with additional purchased water.

<sup>2</sup> Dry year demands were increased by 6.6 percent for the first year. "Bump" of 6.6 percent provided by MWDOC, 2010.

An example of a catastrophic event impacting water supplies can be found with the firestorm of 1993. On October 27, 1993, a fire started near Laguna Canyon Road about one mile north of El Toro Road. Pushed by Santa Ana winds, the fire reached the community of Emerald Bay and entered the perimeter of the District's Moorhead Reservoir. The fire continued north into Crystal Cove State Park and south into Laguna Beach where it reached Park Avenue. By the time it was contained (about 3:30 a.m. on October 28), the fire had destroyed 366 homes, damaged over 500 more homes and burned over 17,000 acres of brushland. Approximately 16 million gallons of water over normal usage was needed during the period of the firestorm. This

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included additional flow to South Coast Water District. MWD supplied all the water the District could take with no flow restrictions. Because of the dry and windy conditions, all reservoirs were filled. Storage within the District was at about 80 percent when the fire entered Laguna Beach. Normal operating levels would have been between 50 percent and 70 percent.

It was extremely difficult to determine exactly how much water was used at any one time during the fire. However, it was roughly estimated that the peak demand placed on the water system to supply firefighters was approximately 20,000 gallons per minute (gpm). The District also had to contend with broken or melted pipes in burned homes, as well as running sprinklers and hoses that were left abandoned when people had to evacuate the area. The demand on the District's water system was great. In fact, everywhere the fire was being fought, reservoirs were being drained faster than they could be filled. Six of the District's twenty-two reservoirs were completely drained during the fire. The capabilities of the water system were tested during the firestorm of 1993. As a result of the information gathered during the firestorm, upgrades to the system were implemented to minimize the impact of another such event. Since the 1993 firestorm the District has implemented the following.

- Built two reservoirs totaling 8 million gallons.
- Purchased 3 additional fixed and portable emergency generators for pump stations.
- Purchased 4 additional portable, large capacity pumps.
- Installed parallel pipelines in strategic areas for fire flow improvement.
- Identified low-pressure areas within the District, some of which (but not all) can be improved.

The District can deal with both planned and unplanned power outages. In the event of an unplanned power outage within the service area, water supply can be maintained by gravity from the treated water reservoirs located throughout the distribution system. The lower zone reservoirs can continue to be filled by gravity from the imported water supply lines (Coast Supply Line and Aufdenkamp Transmission Main). Public outreach to reduce demands would occur immediately. Mobile generators that the District owns or can obtain quickly from neighboring agencies would be transported to key locations to allow for transfers to upper zones. In the event of a regional power outage affecting the imported water supply, the distribution system would be relied on until imported supply deliveries return to normal. A more aggressive level of public outreach and water use restrictions would occur with the regional outage, as described below under Level 3 response.

### **5.3.1 Water Use Efficiency and Water Supply Shortage Program**

On June 16, 2009, the District's Board of Directors approved Ordinance 100 establishing a Water Use Efficiency & Water Supply Shortage Program. The purpose of this ordinance was to

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provide for increasingly serious stages of water shortages and to define voluntary and mandatory water conservation measures to be implemented during these stages. Key elements of the District's Ordinance include the following. The program can be found in Appendix F.

**1. Permanent Mandatory Restrictions** that are in effect at all times and if not adhered to represent waste and unreasonable use of water. These measures are designed to optimize water use efficiency even when there is no water supply shortage. All District customers are required to adhere to these restrictions throughout the year. The permanent year-round actions designed to alter behavior during non-shortage conditions are described in Section 6.

**2. Staged Responses to Water Supply Shortages.** The ordinance details four levels of District response to escalating water shortages. Depending upon the degree of water supply shortage, the District could enact any of the four levels listed below. This would trigger additional water use efficiency measures for District customers, over and above the permanent measures. These stages are discussed more below.

- **Water Watch** voluntary measures enacted in times of shortage to achieve a 5 to 15 percent reduction in water use.
- **Level 1 Water Alert** mandatory restrictions enacted in times of shortage to achieve a 15 to 30 percent reduction in water use.
- **Level 2 Water Warning** mandatory restrictions enacted in times of shortage to achieve a 30 to 50 percent reduction in water use.
- **Level 3 Water Emergency** mandatory restrictions enacted in times of shortage to achieve over 50 percent reduction in water use.

**3. Enforcement and Penalties** are in place for failure to comply with any provisions of the Ordinance. First offenses will bring warnings. Subsequent offenses will draw fines increasing up to \$500. Noncompliance could be prosecuted as a misdemeanor.

### 5.3.2 Stages of Action

The District is vulnerable to potential disaster situations that could result in catastrophic interruption of water supplies. These situations include, but are not limited to drought, a regional power outage, earthquakes, landslides, interruption or reduction of imported supply, and water contamination. This can result in extreme shortage for water available for fire fighting and consumption. Since various actions will need to be taken to continue water service, 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.

<b>Table 35</b>		
<b>Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages</b>		
<b>Stage Number</b>	<b>Water Supply Conditions</b>	<b>% Shortage</b>
Water Watch	Total deliverable supply is 85 to 95% of normal	5 to 15 percent
Level 1 Alert	Total deliverable supply is 70 to 85% of normal	15 to 30 percent
Level 2 Warning	Total deliverable supply is 50 to 70% of normal	30 to 50 percent
Level 3 Emergency	Total deliverable supply is 50% of normal	Over 50 percent

A water supply shortage or threat of shortage exists when the District determines, in its sole discretion that it exists, due to drought, catastrophe, or other water supply condition. The District’s Board of Directors may declare a Water Watch, Level 1 Water Alert, or Level 2 Water Warning at a regular or special public meeting in accordance with State law. The District may declare a Level 3 Water Emergency in accordance with Water Code Sections 350, 351, and 352. For notification of a Level 3 Water Emergency, except as otherwise provided by State law, the District must publish a copy of the water emergency resolution in a newspaper used for the publication of official notices within the jurisdiction of the District within ten business days of the date that the emergency is declared. Except as otherwise provided by State law, additional mandatory water use efficiency requirements will take effect on the tenth business day after the date that the emergency is declared.

### **5.3.3 Mandatory Prohibitions**

Table 36 lists the mandatory prohibitions against specific water use practices. Information pertaining to specific prohibitions and reduction methods for each of the stages can be found in the District’s Water Use Efficiency & Water Supply Shortage Program provided in Appendix F. There are exemptions allowed for many of the actions listed in Table 36. For example, under Level 3 Water Alert, all watering is prohibited, but watering with a hand held bucket and maintenance of existing landscaping for fire protection are allowed.

Table 36	
Water Shortage Contingency — Mandatory Prohibitions	
Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Level 1 Alert: In addition to permanent water use efficiency measures, voluntary water use efficiency measures, water allocations and water budgets, and water supply shortage rates. Limits on watering days to no more than 3 days per week. Leaks, breaks, or malfunctions in water users facilities must be fixed in no more than 48 hours after being notified by District.	15 to 30 percent shortage in imported supply and/or up to 30 percent reduction needed in consumer demand
Level 2 Alert: In addition to Level 1 Alert actions. Limits on watering days to no more than 2 days per week. Filling or refilling ornamental fountains and ponds are prohibited. Filling or refilling residential pools or spas of more than one foot of water is prohibited. Hosing or washing down vehicles is prohibited. New potable water service, new meters, or will-serve letters will not be provided.	30 to 50 percent shortage in imported supply and/or up to 50 percent reduction needed in consumer demand
Level 3 Alert: In addition to Level 2 Alert actions. All water of lawns, landscaping, and vegetated areas is prohibited.	50 percent shortage in imported supply and/or up to 50 percent reduction needed in consumer demand

### 5.3.4 Consumption Reduction Methods

Consumption reduction methods to be used to reduce water use in the most restrictive stage of Level 3 are listed in Table 37. Because outdoor watering constitutes about 50 to 60 percent of District residential demands, it is anticipated that total demands will be reduced by 50 percent under the Level 3 watering restrictions alone in order to meet potential supply reductions of 50 percent.

Table 37		
Water Shortage Contingency — Consumption Reduction Method		
Reduction Method	Stage When	Projected Reduction (%)
No watering allowed.	Level 3: 50 percent shortage in imported supply and/or up to 50 percent reduction needed in consumer demand	Minimum of 50 percent
<b>Total</b>		50 percent

### 5.3.5 Penalties or Charges for Excessive Use

Any violation of the District’s Water Use Efficiency & Water Supply Shortage Program, including waste of water and excessive use, is a misdemeanor punishable by imprisonment in the county jail for not more than 30 days or by a fine not exceeding \$600 or both. In addition to any other

remedies that the District may have for enforcement, service of water would be discontinued or appropriately limited to any customer who willfully uses water in violation of any provision of the plan. Table 38 lists the penalties for violation of any prohibitions.

<b>Table 38</b>	
<b>Water Shortage Contingency — Penalties and Charges</b>	
<b>Penalties or Charges</b>	<b>Stage When Penalty Takes Effect</b>
Written warning	First instance of non-compliance
Fine not to exceed \$100	Second instance of non-compliance
Fine not to exceed \$250	Third instance of non-compliance
Fine not to exceed \$500; water flow restrictor to 1 gallon per minute	Fourth and subsequent violations
In addition to fines and flow restrictor, terminate service if willful violations of mandatory restrictions	Any violation of prohibitions
Misdemeanor: imprisonment in county jail or fine or both	Any violation of prohibitions

### 5.3.6 MWD Allocation

As done in the past, the District will follow the Water Supply Allocation Plan guidelines of MWD once an extreme shortage is declared. This allocation plan is enforced by MWD using rate surcharges. MWDOC follows the guidelines of the allocation plan and imposes the surcharge that MWD applies to its member agencies that exceed their water allocation. This will result in higher costs to the District if its purchases exceed its allocation.

### 5.3.7 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

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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. The District has an Operating Contingency Reserve Fund and Rate Stabilization Fund. These funds have been used in the past to stabilize rates during periods of reduced water sales. If necessary, the District will reduce expenditures by delaying implementation of its Capital Improvement Program and equipment purchases, and as a last resort adjust the work force, implement a drought surcharge, and/or make adjustments to its water rate structure.

### **5.3.8 Mechanisms to Determine Actual Reductions**

The District will implement its Water Use Efficiency & Water Supply Shortage Program, 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.

#### **Level 1 and 2 Water Shortages**

Weekly production figures are forwarded to the Operations Manager during Level 1 and 2 shortages. The weekly production figures are compared to the target weekly production to verify that the reduction goal is being met. Weekly reports are sent to the General Manager. If reduction goals are not met, the General Manager will notify the Commission so that corrective action can be taken.

#### **Level 3 Water Shortages**

During a Level 3 emergency, the procedure above will be followed with the addition of a daily production report to the Operations Manager and General Manager.

#### **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

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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.

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## Section 6 - Demand Management Measures

### 6.1 Background

The District is committed to water use efficiency (WUE) as a means to maintain its reliable supply sources for its service area. WUE has become a major part of the District's current and future programs to reduce demand and increase water supply reliability. The District plans to continue implementation of its WUE programs in conjunction with MWDOC. As a member agency of MWDOC, the District benefits from various regional programs performed by MWDOC on behalf of its member agencies.

MWDOC became a signatory to the Best Management Practices (BMP) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) in 1991. MWDOC has made the State-mandated Demand Management Measures (DMMs) monitored by the California Urban Water Conservation Council (CUWCC) the cornerstone of its conservation programs for its member agencies.

AB 1420 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 14 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 eligibility purposes. Compliance on a regional basis required 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.

Retail water agencies throughout Orange County recognize the need to use existing water supplies efficiently. Implementation of BMP-based efficiency programs makes good economic sense and reflects responsible stewardship of the region's water resources. All retail water agencies in Orange County are actively implementing BMP-based programs; however, not all retail water agencies are signatory to the MOU. Most of the cost of implementing these programs is incorporated in MWDOC's rate surcharges.

The District's and MWDOC's commitment to implement BMP-based water use efficiency programs continues today. Table 39 presents the implementation responsibility between MWDOC, as the wholesaler and as the regional program manager, and the District for each of the DMMs. To help facilitate implementation of BMPs throughout Orange County, MWDOC's efforts focus on the following three areas that both comply with and go beyond the basic DMMs - Wholesaler Assistance requirements.

- **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 countywide programs with the same participation guidelines, while maintaining a consistent message to the public to use water efficiently. Regional programs implemented by MWDOC on behalf of the region are identified in Table 39. Outside funding for water use efficiency projects and programs has been obtained from MWD, U.S. Bureau of Reclamation (USBR), State Water Resources Control Board (SWRCB), and other state and federal sources.

Table 39				
Implementation Responsibility and Regional Programs				
Item <sup>1</sup>	Efficiency Measure	Applies to:		MWDOC Regional Program
		Retailer	MWDOC as a Wholesaler	
A	Water Survey Programs for Single Family and Multi-family Residential Customers	✓		✓
B	Residential Plumbing Fixture Retrofits	75% saturation goal achieved in 2001		
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	✓	✓	✓
K	Conservation Pricing	✓	✓	✓
L	Water Conservation Coordinator	✓	✓	✓
M	Water Waste Prohibition	✓		✓
N	Residential ULFT Replacement Programs/Water-Sense Specification Toilets	✓		✓

<sup>1</sup>Per UWMP Act 10631(f)(1) and (2)

- **Local Program Assistance.** When requested, MWDOC assists retail agencies in developing and implementing 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

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local 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.

## **6.2 Demand Management Measures**

The MOU outlines 14 DMMs for urban water conservation. The urban water conservation practices are intended to reduce long-term urban demands from what they would have been without implementation of these practices. They are in addition to programs that may be instituted during occasional water supply shortages. The District and the Water Use Efficiency Department at MWDOC take pride in providing programs to assist customers in reducing the amount of water used.

Programs administered by MWDOC's Water Use Efficiency Department to assist in promoting regional water use efficiency, as well as the District's DMM activities, are presented here. Table 40 lists District activities and MWDOC's regional water use efficiency DMM programs that are underway or scheduled for implementation within the next five years. All DMMs are either implemented directly by the District or as a part of MWDOC's regional program. A description of each is presented following the summary table.

Table 40			
LBCWD Demand Management Measure Status			
Item <sup>1</sup>	Demand Management Measure	DMM Status <sup>2</sup>	
		Implemented or Scheduled for Implementation	Not Implemented or Scheduled for Implementation
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	✓	
K	Conservation Pricing	✓	
L	Water Conservation Coordinator	✓	
M	Water Waste Prohibition	✓	
N	Residential ULFT Replacement Programs/Water-Sense Specification Toilets	✓	

<sup>1</sup>Per UWMP Act 10631(f)(1) and (2)

<sup>2</sup>Implemented by either LBCWD or MWDOC.

## DMM A – Residential Water Survey Programs

In 2009, the District implemented its Waterwise House Call residential survey program. A direct mailing offering the free program to the District’s top 10 percent water users was completed in 2010. Currently, the District conducts residential surveys on an informal basis following a high water bill complaint, a higher than normal meter reading, or by customer request. As part of the District’s new water budget allocation rate structure, customers requesting an increase in their water budget may be required to participate in the Waterwise House Call program before being considered for a variance. The following MWDOC programs, aimed at increasing landscape water use efficiency for residential customers, are offered to eligible program participants at the time of the survey.

**Smart Timer Rebate Program.** In FY 2004/05, MWDOC launched its rebate incentive program for the purchase and installation of ‘weather based irrigation controllers’ or ‘Smart Timers’.

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Under this regional program, residential and small commercial properties are eligible for a rebate when they purchase and install a weather-based irrigation controller. These controllers have the potential to save 41 gallons per day per residence and can reduce runoff and pollution by 49 percent. While the commercial rebate MWDOC provides has been adjusted over time, the residential rebate has remained steady at \$60 per active valve. Commercial rebates evolved from \$630 per irrigated area in the beginning to \$25 per station currently. Because it was a new landscape water management device, MWDOC included a device installation verification step. Post installation verification is provided, along with any necessary smart timer scheduling corrections. The site's irrigation system is also evaluated, providing important educational advice on what needs to be improved.

The rebate program is funded by a grant from the SWRCB. Besides the SWRCB, additional funding partners include DWR, USBR, Natural Resource Conservation Service, MWD, and the local retail water agencies of Orange County. Because of the funding, MWDOC has been able to provide incentives for the installation of just under 2,400 residential smart timers and over 3,400 commercial smart timers throughout the county. The District has installed 40 residential and 14 commercial smart timers, resulting in a cumulative savings of 26 acre-feet.

**Rotating Nozzle Rebate Program.** This rebate program is offered to both residential and commercial customers. Through this program, site owners purchase and install rotary nozzles in existing irrigation systems. The rebate covers the cost of the devices and installation. The rebates will not exceed either of these two expenses. Following the submittal of a rebate application, water bill, and original purchase receipt, MWDOC directs the contractor to perform installation verifications of the sites. Verifications include both residential and commercial properties. As a final step in the program, a qualitative and quantitative evaluation will be conducted on the rotary nozzles installed within the three-year program time line when there is sufficient time to gather consumption data for a 12-month post-installation period. Since the program start date in 2007, overall water savings to date are over 2,500 acre-feet of water throughout the county. There have been a total of 146,855 nozzles installed in the MWDOC service area. The program has been extended through December of 2012 with a grant funding amount of \$831,300. A total of 563 residential and 47 commercial rotating nozzles were installed within the District's service area, resulting in a cumulative savings of 5.8 acre-feet for the District.

**Turf Removal Program.** Through a partnership between MWDOC, MWD, and local retail water agencies, residential and small commercial customers are eligible to receive a minimum of \$1 per square foot for turf removed for qualifying projects. The estimated project funding for residential sites is \$76,600, while commercial site funding is estimated at \$178,700. The

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program goals are to increase water use efficiency within Orange County, reduce runoff leaving the properties, and evaluate the effectiveness of water-saving practices.

Customers complete and return the program application to MWDOC for review and to determine whether the site will be approved or denied. Once the application is approved, customers are contacted to schedule the mandatory pre-inspection. When the customer's pre-inspection is complete, the results are forwarded to program staff. If the site qualifies, a follow-up letter and authorization to proceed will be mailed/emailed out within a few days. Upon receipt of this authorization to proceed, the customer may begin the turf removal project. The customer has 60 days to complete the work. Once all work is complete, the customer contacts the Program Administrator to verify that the work is complete and schedule the mandatory post-inspection. After the final mandatory site visit and verification of the amount of turf removed, the rebate check is issued. The District has had 7,701 square feet of synthetic turf installed, with a cumulative savings of 3.7 acre-feet.

**California Friendly Landscape Training (Residential).** The California Friendly Landscape Training provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices. These classes are hosted by MWDOC and/or the retail agencies that 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 topics presented include the following.

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

Since 2005, approximately 1,040 people have participated in the residential California Friendly Landscape Training Program throughout Orange County, with no numbers identified specifically for the District. Data is not gathered on professional landscape contractor customer locations.

### **DMM B - Residential Plumbing Retrofits**

Using the 2001 *Orange County Saturation Study* as a benchmark, MWDOC measured the saturation of low-flow showerheads at 67 percent and 60 percent in single and multi-family housing stock respectively. Today, low-flow showerhead saturation is estimated at nearly 100 percent and 94 percent saturation in single and multi-family homes, respectively. As a result, water agencies throughout Orange County have achieved the 75 percent saturation requirement for this BMP. No further low-flow showerhead distribution or installation activity has occurred. Free devices are offered to District customers by request at the District office.

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## **DMM C - System Water Audits, Leak Detection and Repair**

The District maintains an emergency response program that aggressively repairs main breaks, hydrant leaks or breaks, and meter leaks. A team is available to permanently repair breaks and promptly restore water service. All meter leaks are investigated and repaired the same day unless unable to do so; then next day service is performed.

To assist its retail agencies, MWDOC publishes the *Orange County Water Agencies Water Rates, Water System Operations, and Financial Information* survey annually. This survey facilitates a pre-screening survey that estimates the volume and percent of unaccounted for water for each retail water agency in the county. In 2004, the percent of unaccounted for water for Orange County retail water agencies ranged from a low of 1.2 percent to a high of 10.7 percent, with an average of 5.1 percent. District data indicate that the unaccounted for water estimate was 4.3 percent for its distribution system over the previous seven years, reflecting a very efficient system. The District's 2006 water master plan includes improvements to help further reduce unaccounted for water loss.

## **DMM D - Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections**

Metering with commodity rates by wholesale and retail agencies has been an industry standard throughout Orange County for many years. All customers in the District are metered and billed bi-monthly based on commodity rates. The District requires meters for all customers and bills by volume of use. The District recently adopted a two-tiered rate structure based on property specific water budgets. Tier one includes usage within the customer's water budget; usage above the first tier (considered inefficient use) is billed at a higher unit price. The District will continue to require metering of all connections.

## **DMM E - Large Landscape Conservation Programs and Incentives**

MWDOC offers landscape water use efficiency programs aimed at both residential and commercial customers, as described under DMM A. MWDOC also offers programs in Orange County to specifically assist retail agencies and their large landscape customers to use water efficiently through a landscape performance certification program and California Friendly Landscape Training for professionals. MWDOC's unique and innovative landscape performance certification program is primarily targeted to homeowner associations within the District.

**Public Sector Program.** In 2008, the District participated in MWD's Public Sector Program. Eleven city sites and four schools were surveyed and provided with recommendations for irrigation upgrades including installation of SmartTimer Controllers.

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**California Friendly Landscape Training.** The California Friendly Landscape Training for professionals educates professional landscape contractors on a variety of landscape water efficiency practices they can employ. The professional training program course consists of four consecutive classes in landscape water management, each building upon principles presented in the preceding class. Each participant receives a bound handbook containing educational materials for each class. These classes are offered throughout the year and are taught in both English and Spanish. The following is a synopsis of each class in the course.

- **Irrigation Principles:** Topics include irrigation system types, sprinkler layouts, sprinkler components, sprinkler selection and spacing, and common sprinkler problems.
- **Irrigation System Troubleshooting:** This session focuses on an analytical approach to solving irrigation system failures. Three potential problem areas are examined: 1) mechanical problems, 2) hydraulic problems, and 3) electrical problems. Workshop participants receive practical training in the use of electrical troubleshooting equipment.
- **Controller Programming:** A hands-on workshop where participants learn basic controller features by programming sample cases. Participants then move into advanced controller features as they input more complex schedules, taking into consideration temperature/seasonal changes, rain, landscape activities, and demands that limit irrigation times. Irrigation controllers are provided for in-class use.
- **Irrigation Scheduling:** This session focuses on two critical questions: 1) when to irrigate, and 2) how much water to apply. A variety of field techniques and methods are presented along with technical aspects to be considered when scheduling irrigation run times. Each class participant is furnished with the tools needed to perform an irrigation scheduling assignment.

Upon completion of the course, participants receive a certificate listing all classes completed. Participants are eligible for continuing education credits as certified by the Irrigation Association. There were 362 commercial participants in MWDOC's program since 2005. It is not possible to determine how many of these professionals work on landscapes within the District service area. Of the homeowner association trainings, 141 meters were certified in the program within the District since 2005 with a cumulative water savings of 188 acre-feet to-date.

### **DMM F – High Efficiency Washing Machine Rebates**

The District participates in the SoCal WaterSmart residential rebate program offered by 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

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when they purchase a new high efficiency clothes washer (HECW). This program began in 2001 and is sponsored by MWDOC, MWD, and local retail water agencies. Rebates are available on a first-come, first-served basis, while funds last. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. Machines must have a water factor of 4.0 or less. Depending on use, these machines can save 10,000 gallons of water per year.

As of 2010, more than 62,555 HECWs have been installed in single and multi-family homes in Orange County through this program. These retrofits have saved over 7,700 acre-feet over the program's lifetime. The District participation has been 668 machines installed since 2001 with a cumulative savings of 78 acre-feet.

### **DMM G - Public Information Program**

This DMM addresses public information programs to promote water use efficiency and educate customers about water use. The District considers its public education and school programs to be essential components of a water use efficiency program. The District operates an extensive public information program and associated schools program, which provide materials, speakers and outreach activities to the general public. The District employs two full-time Water Use Efficiency Technicians/Community Relations Coordinators to provide outreach related to water conservation, water-efficient landscaping, watershed protection, and water quality.

Outreach activities include publications, public meetings, District participation at community events, multi-media campaigns, inter-agency partnerships, facilities tours, regional press releases, water quality reports, feature story ideas, water conservation workshops and seminars, and a speaker's bureau.

**Newsletters.** The District puts out a newsletter issue with each bi-monthly billing cycle. Topics covered in the newsletter include general topics of public interest, water rate changes, as well as water use efficiency information on such topics as rebates, irrigation and landscaping, and other water use efficiency resources.

**Bill Inserts.** In the past year, the District sent out inserts for the Smart-Timer program. Water use efficiency messages are also printed on the bill itself. Consumption Information on water bills are bi-monthly and show consumption in gallons and cubic feet, as well as a comparison to last year's consumption, where applicable.

**New Customer Welcome Packet.** The District provides a "New Customer Welcome Packet" containing important information for new customers. A welcome letter, signed by the General Manager, explains the District's current water crisis and the need for water use efficiency. In addition, information on the District's water use restrictions, Auto Pay service, current

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customer newsletter, billing information, District contact information, and water use efficiency materials are included. New customers receive the Welcome Packet upon signing up for service with the District.

**Press Releases.** The District provides press releases on District issues to the three local newspapers on a frequent basis.

**Letters to State Legislature.** The District coordinates efforts with MWDOC and the Association of California Water Agencies to lobby the state legislature on pending legislative issues that could impact the District.

**Outreach Materials.** Customers can help themselves to a selection of indoor and outdoor water conservation literature, rebate forms, and resource lists located inside the District lobby.

**Water Use Efficiency Hotline.** The District has established a dedicated Water Use Efficiency Hotline where customers can call to get rebate program information and report water waste. The hotline number is 949-342-1437.

**Water-wise and Fire-safe Demonstration Garden.** In 2003, the District finished renovating the demonstration garden at the District Headquarters. The transformation included doubling the size, removing the lawn, and completely changing the layout and plant makeup of the site. Local residents and tourists stroll through the grounds regularly and gather gardening inspiration from the District's selection of water-wise and fire-safe plants. Signs with pictures and information for each plant help make the garden visitor-friendly. Tours of the District's Water-wise and Fire-safe Demonstration Garden are scheduled upon request.

In 2005, the District received a grant from MWD to update the signs, waterproof the literature rack, produce more informational brochures on the plants in the garden, and purchase a computer kiosk for the District's lobby that provides garden information for visitors.

**Speakers Bureau.** Upon request, the General Manager, Assistant General Manager, or Water Use Efficiency staff will speak to groups on a variety of water-related topics. The following groups typically request speakers from the District: Laguna Beach Rotary Club, Chamber of Commerce, and Laguna Canyon Conservancy.

**Door Hangers.** Two types of door hangers are used to help customers save water. One alerts customers when their usage is above normal, such as a leak or other condition that needs attention. A second door hanger is a water waste reminder to inform residents when their landscape irrigation systems cause runoff into the street or when meter boxes are obstructed by overgrown landscaping.

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**Participation in the Local Farmers Market.** District staff provides water use efficiency literature, rebate forms, and answers questions at the local farmers’ market once a month. The farmers’ market is held every Saturday from 8 am to 12 pm year-round in downtown Laguna.

**“Roll Out the Rain Barrel” Contest.** In 2010, the District launched its first annual “Roll out the Rain Barrel” art contest to Laguna Beach students and District customers. Participants create an original drawing that, if chosen, can be painted on an actual working rain barrel. Winners are recognized at a District Commission meeting and in local newspapers, and their rain barrels are displayed in storefront windows around Laguna Beach during February and in the District’s lobby during May. The contest brings attention to rainwater harvesting, the collection and storage of rainwater from rooftops that would otherwise become contaminated runoff conveyed to storm drains and the ocean. Rainwater harvesting by customers does not have a significant impact on reducing potable water use but it does raise awareness of water supplies and landscape consumption, often resulting in the replacement of plant materials with more low water using materials.

**SmartScape Info/Expo.** In 2010, the District hosted its first *SmartScape Info/Expo* at its headquarters. This annual event highlights and promotes the benefits of using California native plants and efficient irrigation techniques in residential and commercial landscape settings. Attendees have the opportunity to meet face-to-face with knowledgeable landscape and irrigation professionals, attend hands-on demonstrations and free workshops, and meet representatives from local companies exhibiting the latest water efficient landscape products.

**Waterwise Garden Mini Grant.** The District offers mini-grants up to \$2,500 to non-profit organizations, schools, and public agencies with public-access gardens. The mini-grant can be used to increase irrigation efficiency, create new water-wise plantings, or promote water efficient gardening.

**MWDOC Programs.** Although the District has an extensive public outreach program, MWDOC also assists its member agencies in reaching the public with accurate, consistent information regarding present and future water supplies and the importance of implementing water efficient techniques and behaviors. MWDOC also assists its member agencies in publicizing the availability of water use efficiency programs and technologies throughout Orange County. MWDOC conducts the following activities on behalf of, and in coordination with, its member agencies.

- Public affairs workgroup
- Poster/slogan contest
- Local and regional events
- Speakers bureau

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- Facility inspection trips of MWD, SWP, and GWRS facilities
  - Information materials
  - Water quality reports
  - Media relation

The District participates in the monthly Public Affairs Workgroup meetings conducted by MWDOC to coordinate public outreach efforts and share information on a countywide basis.

### **DMM H - School Education Programs**

The District has been continuously active in this area by providing free classroom presentations and tours of District facilities to schools within the service area. The objective is to teach students about water conservation, water supply, watershed stewardship, and flood protection. The District also provides school curricula to area educators, including workbooks and videos, as well as hands-on training for teachers.

**Project WET Training.** Since 2004, Project WET training has been available through the District for groups of elementary, middle, and high school educators. Other outreach efforts include letters to science department chairs.

**Lending Library.** Lesson plans, videos, activity guides, and water maps are available to teachers and other group leaders of K-12 students.

**Classroom Presentations.** One of the most successful and well-recognized water education curricula in Southern California is MWDOC's School Education Program. The District has participated in this program since its inception in January 1973. It reaches nearly 90,000 Orange County students annually. These programs promote water conservation and water conservation related benefits. MWDOC teachers, assisted by its mascot "Ricki the Rambunctious Raindrop," have been educating students in grades kindergarten through high school about the water cycle, the importance and value of water, and the personal responsibility we all have as environmental stewards. In 2004, MWDOC formed an exciting partnership with the Discovery Science Center that has allowed both organizations to reach additional Orange County students and provide them with even greater educational experiences in the areas of water and science.

### **DMM I - Commercial, Industrial, and Institutional (CII) Programs**

The District has been continuously active in this area by providing free materials and programs to businesses within the service area. As a member agency of MWDOC, the District participates in commercial, industrial, and institutional (CII) water conservation programs. MWDOC offers financial incentives under the "Save Water Save a Buck" rebate program, which offers rebates for various water efficient devices to CII customers, and the Water\$mart hotel program.

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**WAVE Program.** The District's WAVE Program (Water Awareness Visitor Education Program) is a free voluntary program for businesses designed to educate visitors of Laguna Beach about the importance of water use efficiency. Guests of participating establishments are introduced to the program through the placement of "tent cards," which announce that water will be served only upon request and bed and bath linen will be changed only upon request. These measures save an enormous amount of water, especially in dishwashing operations and in hotel and motel laundry rooms. It is estimated that a single glass of water served in a restaurant or dining room requires four additional glasses of water to wash and rinse each glass.

**Waterless Urinal Program.** The District has installed over 70 waterless urinals in City facilities and local businesses since 2008. Waterless urinals save up to 45,000 gallons of water per year.

**Save Water Save a Buck.** This program began in 2002 and offers rebates to assist CII customers in replacing high-flow plumbing fixtures with low-flow fixtures. Facilities where low-flow devices are installed must be located in Orange County. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as is applicable to their site. Rebates are available only on the following devices and must replace higher water use devices. The current rebate amount is also provided.

- High efficiency toilet: \$50
- Ultra low water or zero water urinal: \$200
- Connectionless food steamers: \$485 per compartment
- Air-cooled ice machines (Tier III): \$300
- Cooling tower conductivity controller: \$625
- pH/conductivity controller: \$1,750
- Dry vacuum pumps: \$125 per horsepower
- Water pressurized broom: \$110

As of FY 2010/11, CII customers within the District have installed a total of 419 water saving fixtures, representing a cumulative water savings of 129 acre-feet. CII customers within Orange County have installed a total of 38,461 water-saving fixtures, representing a cumulative water savings of 16,909 acre-feet.

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

The Program is offered to hotels in MWDOC's service area as identified by retail water agencies. It is anticipated that a detailed survey of the indoor and outdoor water using aspects of up to 105 participating hotels will be performed. Participating hotels receive survey reports that

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recommend indoor and outdoor retrofits, upgrades, and other changes that should, based on the survey, result in significant water savings. Quantities of each device and associated fixture and installation costs, water savings and payback information (based on rebate amount Incentives offered through the Save Water Save a Buck Rebate Program) will be augmented using DWR and USBR WUE grant funds. These funds bridge the gap between existing incentives and the actual costs of hotel water survey recommendations. To-date, over 24 surveys were performed countywide, and over 9,500 water saving devices have been installed through the program. These devices are saving 351 acre-feet per year or 3,510 acre feet over the ten year device life. Three Water Smart Hotel surveys have been conducted in the District's service area since 2009.

### **DMM J - Wholesale Agency Programs**

The District receives assistance to implement water use efficiency programs from MWDOC. MWDOC provides financial incentives, conservation-related technical support, and regional implementation of a variety of BMP-based programs. In addition, MWDOC conducts research projects to evaluate implementation of both existing programs and new pilot programs. Providing regional programs on behalf of the District and other retail agencies in Orange County minimizes confusion to customers and maintains a consistent message to the public to use water efficiently.

### **DMM K - Conservation Pricing**

Beginning January 1, 2011, the District implemented a tiered rate structure based on property specific water budgets. Tiered rates provide customers with an economic incentive to use water efficiently and pass on the higher costs associated with conservation programs and development of supplemental water sources to those who use water inefficiently.

Water budgets promote efficient water use by providing enough water for typical, yet efficient, water use indoors and outdoors without penalty. Budgets are property specific and take into account different water use factors depending on whether it is a single family, multi-family, CII, mixed use, or irrigation-only water account.

The District's water rates meet the CUWCC definition of "conservation pricing" that includes "rates designed to recover the cost of providing service." The District bills bi-monthly based on a fixed service charge based on meter size, plus a commodity charge. The District's Budget Based Water Allocation Rate Structure consists of individualized budgets for all customer accounts. Single-family residential customers receive a bi-monthly customized water budget based on the number of people in the home, the property's irrigated acreage, and seasonal weather data. Water budgets for single meter multi-family, dual use, commercial/industrial/institutional accounts are based on a three-year rolling historical average for each meter. Hotel/motel accounts are allotted 144 gallons of water per guest room based on the number of

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rooms. Irrigation only customers have an outdoor water budget set according to the property's landscaped area and seasonal weather data. Customers who use more than their budget allotment pay for the additional use at an Inefficient Use Rate. Customers may apply for a variance to their water budget to adjust number of people in household, irrigated area, or for other special circumstances.

As discussed previously, the fixed portion of the monthly charge is designed to cover the cost of water distribution, meter reading, and maintenance of the distribution system and a portion of the capital improvement program. The commodity component is structured to recover the actual cost of water, including imported water charges, and energy and maintenance costs for water production facilities. The second tier is structured to recover the cost of additional conservation programs and new supplies.

### **DMM L - Water Conservation Coordinator**

The District's Administration Department consists of two full-time staff members who handle a variety of tasks related to water use efficiency and community information. District staff works closely with MWDOC's Water Use Efficiency staff to develop and implement District and regional programs.

- a. **Community Relations/Water Use Efficiency Coordinator** (Full-time) – Assists in performing a variety of public outreach and community relations activities, including implementing the school education program and assisting in water use efficiency programs.
- b. **Customer Service/Water Use Efficiency Technician** (Full-time) – Assists in implementing the school education program and various water use efficiency programs for the District and participates in public outreach activities designed to promote water conservation.

### **DMM M - Water Waste Prohibition**

The Board of Directors passed Ordinance No. 100 on June 16, 2009 prohibiting waste and unreasonable use of water. These provisions are incorporated into the District's water use efficiency program located in Appendix F. Section III specifies that the ordinance is designed to prevent waste of potable water and maximize efficient use in the District. It includes specific requirements, in Section VI under permanent mandatory measures that are effective at all times, regarding the prohibition of wasting water. Water waste refers to "uses of water that are limited or prohibited under the Ordinance because they exceed necessary or intended use and could reasonably be prevented, such as runoff from outdoor watering".

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## **DMM N - Residential ULFT Replacement Programs/Water-Sense Specification Toilets**

Over the past 20 years, MWDOC has implemented a regional ultra low flow toilet (ULFT) rebate and/or distribution program targeting single and multi-family residents in Orange County. Since the end of the distribution program in 2004, MWDOC's program now focuses on providing rebate incentives for retrofitting non-efficient devices with either ULFTs or high efficiency toilets (HET) – toilets using 1.28 gallons per flush or less. The ULFT portion of this program concluded in June 2009. 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 throughout the county. The HET rebate program, which concluded in 2010, resulted in over 26,600 devices, with an overall program to-date savings of approximately 3,400 acre-feet throughout the county. The District had 149 HETs installed with a cumulative savings of 17.8 acre-feet and 757 UFLTs with a cumulative savings of 726 acre-feet.

### **6.3 Evaluation of Non-implemented DMMs**

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

## **Appendix A**

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### **DWR 2010 UWMP Checklist**

**Laguna Beach County Water District**  
**Appendix A**  
**DWR 2010 Urban Water Management Plan Checklist**

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
<b>PLAN PREPARATION</b>				
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 3.4; Appendix C

**Appendix A - DWR 2010 UWMP Checklist**

No.	UWMP requirement <sup>a</sup>	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
<b>SYSTEM DESCRIPTION</b>				
8	Describe the water supplier service area.	10631(a)		Section 2.2
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.3 and 2.4
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 2.4; 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 2.4; Table 2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.4
<b>SYSTEM DEMANDS</b>				
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 3.4

**Appendix A - DWR 2010 UWMP Checklist**

No.	UWMP requirement <sup>a</sup>	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 & 3.3; 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 3.3.5; 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 3.3.2; Table 11
<b>SYSTEM SUPPLIES</b>				
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 4.2.1; Mgnt Plan in e-version of Appendix E
16	Describe the groundwater basin.	10631(b)(2)		Section 4.2

**Appendix A - DWR 2010 UWMP Checklist**

No.	UWMP requirement <sup>a</sup>	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; Judgment in Appendix E
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

## Appendix A - DWR 2010 UWMP Checklist

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
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; Tables 21 & 22
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 4.5.2; 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 4.5.2;
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 4.5.3; 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 4.5.3; 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 4.5.4; 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 4.5.4; Table 25
<b>WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING <sup>b</sup></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

**Appendix A - DWR 2010 UWMP Checklist**

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
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
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 5.2.1; 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 5.3.7
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix F
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.3.8
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

**Appendix A - DWR 2010 UWMP Checklist**

No.	UWMP requirement <sup>a</sup>	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
<b>DEMAND MANAGEMENT MEASURES</b>				
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; Tables 39 & 40
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.	NA

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**

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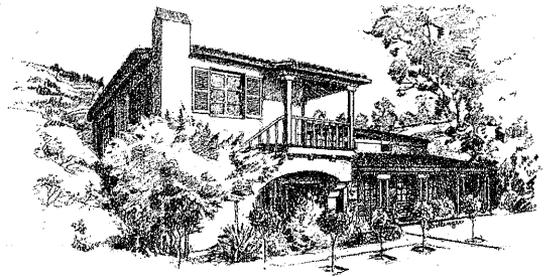
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## **Appendix C**

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### **Public Participation and Plan Adoption**

# LAGUNA BEACH COUNTY WATER DISTRICT



INCORPORATED 1925

**COMMISSIONERS:**

BRUCE R. SCHERER, Chair  
SUSAN M. TRAGER, Vice Chair  
MARVIN C. JOHNSON  
MARK B. LEWIS  
DEBORAH K. NEEV

**GENERAL MANAGER:**

RENAE M. HINCHEY

**MANAGEMENT:**

CHRISTOPHER J. REGAN, Assistant General Manager  
RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.

March 10, 2011

John Pietig, City Manager  
City of Laguna Beach  
505 Forest Avenue  
Laguna Beach, CA 92651

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear John:

As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

A draft of the District's 2010 UWMP will be available for your agency's review prior to the District's public hearing, which is tentatively scheduled for May 24, 2011 at the District's headquarters, 306 Third Street, Laguna Beach. The District will provide a final copy of the UWMP within 30 days of final adoption by the District's Board of Directors. Please contact Christopher Regan, assistant general manager, at (949) 464-3108 or [cregan@lbcwd.org](mailto:cregan@lbcwd.org) if you would like a copy of the draft document, or have questions.

Sincerely,

Renae M. Hinchey  
General Manager

# LAGUNA BEACH COUNTY WATER DISTRICT

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**MANAGEMENT:**  
CHRISTOPHER J. REGAN, Assistant General Manager  
RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.



INCORPORATED 1925

March 10, 2011

Thomas G. Mauk, County Executive Officer  
Orange County Hall of Administration  
333 W. Santa Ana Boulevard  
Santa Ana, CA 92701

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear Thomas:

As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

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Sincerely,

A handwritten signature in cursive script that reads "Renae M. Hinchey". The signature is written in black ink and is positioned above the typed name.

Renae M. Hinchey  
General Manager

# LAGUNA BEACH COUNTY WATER DISTRICT

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DEBORAH K. NEEV

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RENAE M. HINCHEY

**MANAGEMENT:**

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RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.

INCORPORATED 1925

March 10, 2011

Mike Dunbar, General Manager  
South Coast Water District  
31592 West Street  
Laguna Beach, CA 92651-6907

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear Mike:

As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

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Sincerely,

Renae M. Hinchey  
General Manager

# LAGUNA BEACH COUNTY WATER DISTRICT

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DEBORAH K. NEEV

**GENERAL MANAGER:**

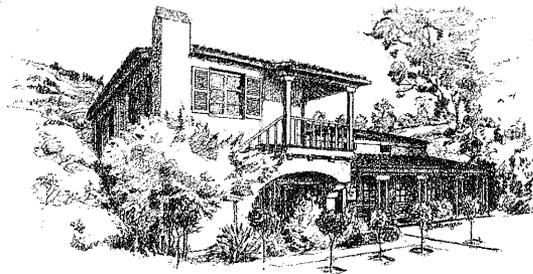
RENAE M. HINCHEY

**MANAGEMENT:**

CHRISTOPHER J. REGAN, Assistant General Manager  
RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.



INCORPORATED 1925

March 10, 2011

Laguna Beach Chamber of Commerce  
357 Glenneyre Street  
Laguna Beach, CA 92651-2310

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

To Whom It May Concern:

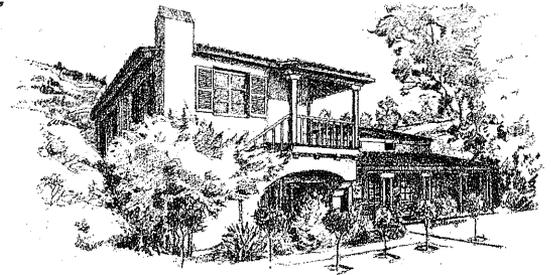
As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

A draft of the District's 2010 UWMP will be available for your agency's review prior to the District's public hearing, which is tentatively scheduled for May 24, 2011 at the District's headquarters, 306 Third Street, Laguna Beach. The District will provide a final copy of the UWMP within 30 days of final adoption by the District's Board of Directors. Please contact Christopher Regan, assistant general manager, at (949) 464-3108 or [cregan@lbcwd.org](mailto:cregan@lbcwd.org) if you would like a copy of the draft document, or have questions.

Sincerely,

Renae M. Hinchey  
General Manager

# LAGUNA BEACH COUNTY WATER DISTRICT

**COMMISSIONERS:**

BRUCE R. SCHERER, Chair  
SUSAN M. TRAGER, Vice Chair  
MARVIN C. JOHNSON  
MARK B. LEWIS  
DEBORAH K. NEEV

**GENERAL MANAGER:**

RENAE M. HINCHEY

**MANAGEMENT:**

CHRISTOPHER J. REGAN, Assistant General Manager  
RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.

INCORPORATED 1925

March 10, 2011

Kevin P. Hunt, General Manager  
Municipal Water District of Orange County  
P.O. Box 20895  
Fountain Valley, CA 92728

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear Kevin:

As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

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RICHARD B. MATHIS, Manager of Operations  
ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.



INCORPORATED 1925

March 10, 2011

Jeffrey Kightlinger, General Manager  
Metropolitan Water District of Southern California  
P.O. Box 54153  
Los Angeles, CA 90054-0153

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear Jeffrey:

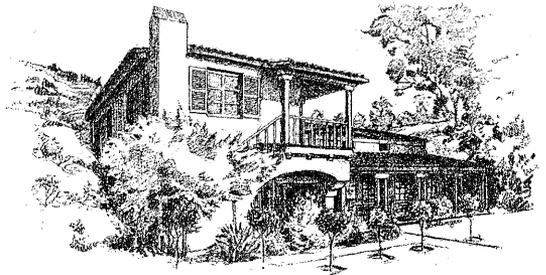
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Sincerely,

Renae M. Hinchey  
General Manager

# LAGUNA BEACH COUNTY WATER DISTRICT



INCORPORATED 1925

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ROBERT L. WESTPHAL, Manager of Finance

**LEGAL COUNSEL:**

PAULA E. MEYER, ESQ.

March 10, 2011

Toni Schmidt, General Manager  
Emerald Bay Services District  
600 Emerald Bay  
Laguna Beach, CA 92651

RE: Laguna Beach County Water District 2010 Urban Water Management Plan Preparation

Dear Toni:

As required by the Urban Water Management Planning Act of the California Water Code, this letter serves as formal notification that the Laguna Beach County Water District is currently updating its Urban Water Management Plan (UWMP). The Act specifically requires urban water suppliers providing water to more than 3,000 customers or supplying more than 3,000 acre feet of water annually to update their UWMP every five years.

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Sincerely,

Renae M. Hinchey  
General Manager

## **Appendix D**

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# **Agreement for Contract Services between EBSD and District**

AGREEMENT FOR CONTRACT SERVICES

BETWEEN

EMERALD BAY SERVICE DISTRICT

AND

LAGUNA BEACH COUNTY WATER DISTRICT

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**AGREEMENT FOR CONTRACT SERVICES**

**BETWEEN**

**EMERALD BAY SERVICE DISTRICT**

**AND**

**LAGUNA BEACH COUNTY WATER DISTRICT**

**Description of Parties**

THIS AGREEMENT is made on September 18, 2001 between EMERALD BAY SERVICE DISTRICT ("EBSD"), a community service district formed and existing pursuant to the Community Services District law, Division 3, Title 6 (commencing at Government Code § 61000 et seq.), and LAGUNA BEACH COUNTY WATER DISTRICT ("LBCWD"), a county water district formed and existing pursuant to the County Water District law, which is currently found at Water Code § 30000 et seq., which is a subsidiary of the City of Laguna Beach.

**Recitals**

The following paragraphs "A" through "H" are incorporated in the Agreement below, as though fully set forth therein:

A. The LBCWD provides water service to its rate payers in the boundaries of LBCWD, including the Community of Emerald Bay ("Emerald Bay"), a community in the unincorporated area of the County of Orange. LBCWD encompasses all of the property shown in Exhibit A hereof. EBSD encompasses all of the property within Emerald Bay, as shown in Exhibit B hereof.

B. In January, 2001 EBSD resolved both to provide water service to the residents of Emerald Bay, and to seek approval from the Local Agency Formation Commission ("LAFCO") for Emerald Bay's detachment from LBCWD, pursuant to Government Code §§ 56300 et seq. EBSD intends to submit an application to the Local Agency Formation Commission of the County of

Orange ("LAFCO") requesting that LAFCO approve the detachment of Emerald Bay from the LBCWD and requesting that LAFCO recognize that the EBSD has the authority to exercise its power to provide water service to Emerald Bay. EBSD intends to submit its application to LAFCO no later than October 1, 2001. EBSD will pay the LAFCO costs, including any CEQA costs, and the fees and costs of EBSD's consultants. LBCWD will pay EBSD the sum of \$25,000.00.

C. LBCWD will not oppose EBSD's application for authority to exercise its power to provide water service to Emerald Bay and for detachment, so long as it does not include any transfer to EBSD of any LBCWD assets (pursuant to Government Code §56886, or otherwise), including, but not limited to priorities of use, water rights, right of use of water, or capacity rights in any LBCWD public improvements, lines, distribution systems, reservoirs, facilities, or of any other LBCWD assets and/or property, real or personal, or any LBCWD money or funds, including cash on hand and moneys due but uncollected, except as specifically stated in this Agreement.

D. Since the LBCWD initiated water service to Emerald Bay, the LBCWD has collected water rates and charges, as well as ad valorem property taxes from the rate payers of Emerald Bay (as it does from LBCWD's other retail customers). Pursuant to Government Code § 57353, no inhabitant, property owner, taxpayer, consumer, or user within Emerald Bay is entitled to either of the following upon detachment: (1) All or any part of any payment on account of the moneys or funds, including cash on hand and moneys due but uncollected, or any property, real or personal, of the LBCWD, (2) Any refund by reason of any taxes, assessments, service charges, rentals, or rates collected prior to Emerald Bay's detachment.

E. Notwithstanding the foregoing, as of the effective date of LAFCO's recognition that the EBSD has the authority to exercise its power to provide water service to Emerald Bay and EBSD's detachment from LBCWD, the pipelines, valves, fire hydrants, and meters within EBSD (hereinafter

called the "Emerald Bay Water Facilities") shall become the property of EBSD, in their "as is" condition.

F. EBSD finds that following LAFCO's recognition of EBSD's authority to exercise its power to provide water service to Emerald Bay and Emerald Bay's detachment from LBCWD, the residents of Emerald Bay may be served water by EBSD, pursuant to the terms and conditions of this Agreement by and between LBCWD and EBSD. Accordingly, while the EBSD will undertake the obligation to provide water service to Emerald Bay following LAFCO's recognition of EBSD's authority to exercise its power to provide water service to Emerald Bay and Emerald Bay's detachment from LBCWD, EBSD contracts with LBCWD to provide wholesale water, maintain and operate the Emerald Bay Water Facilities, and contract engineering services, operation and maintenance services, and administrative services to EBSD pursuant to the terms and conditions of this Agreement. EBSD enters into this Agreement on behalf of the water rate payers of Emerald Bay.

G. LBCWD and EBSD seek the distribution as herein agreed, of the funds each agency deposited in an account pursuant to the "Joint Exercise of Powers Agreement Creating the Laguna Beach/Emerald Bay Public Facilities Authority" ("JPA").

H. LBCWD desires that EBSD release LBCWD from any and all liability related to EBSD's claims as described below in paragraph 16, and EBSD releases LBCWD from those claims.

NOW, THEREFORE, in consideration of the mutual promises set forth below, LBCWD and EBSD agree as follows:

#### **Agreement**

1. Water. Subject to the terms and conditions set forth in this Agreement, LBCWD agrees to provide wholesale, potable water to EBSD, as an independent water Community Service District,

and EBSD agrees to purchase all water needed by EBSD, to supply Emerald Bay, as a wholesale customer and independent agency, from LBCWD.

2. LBCWD charges to serve EBSD.

a. Cost of Water. EBSD shall pay LBCWD the same rate for water that LBCWD is charged for water purchased from Metropolitan Water District of Southern California ("MWD") delivered through the Municipal Water District of Orange County ("MWDOC") (the "wholesale rate for water"). The present wholesale rate for water is \$1.07 per CCF. The proportional impact of any and all increases or decreases in the wholesale rate for water purchased by LBCWD from MWDOC/MWD, or supplemental water from a source other than MWDOC/MWD, shall be passed on to EBSD retroactive to the date of such increases or decreases, in the form of rate increases or decreases. The wholesale water rate charged EBSD under this Agreement will never exceed LBCWD's wholesale cost of water.

b. Delivery Charge. In addition to the water rate set forth in "a." above, EBSD will pay a delivery charge of \$.74 per CCF to LBCWD, consisting of a charge for transportation and distribution and a meter charge based on the size of meter pursuant to the LBCWD Fee Schedule. The delivery charge paid for by EBSD includes unscheduled meter replacement, any repair or replacement of distribution pipelines or appurtenances in Emerald Bay costing less than \$5,000.00 per single project, exercise and normal maintenance as appropriate of valves, fire hydrants, and miscellaneous appurtenances. The proportional impact of any increases or decreases in costs to LBCWD for delivery will be passed on to EBSD, in the form of rate increases or decreases, retroactive to the date of such increases or decreases. The delivery charge to EBSD will never increase any more than to other LBCWD customers.

c. Administration and Overhead Expenses. In addition to the water rate set forth in "a." above, and the delivery charge set forth in "b." above, EBSD will pay LBCWD for its administration and overhead expenses at the rate of \$.61 per CCF. The proportional impact of any increases or decreases in costs to LBCWD with respect to administration and overhead expenses will be passed on to EBSD proportionately, in the form of rate increases or decreases, retroactive to the date such increased or decreased costs are incurred by LBCWD. LBCWD will make the documents which reflect increases and/or decreases in administration and overhead expenses available to EBSD to review in September of each year.

d. Capital Improvements. EBSD shall also be billed on a time and material basis, and shall pay LBCWD the entire cost for all capital improvements with respect to Emerald Bay Water Facilities, including, but not limited to, repair or replacement of distribution mains or appurtenances costing more than \$5,000.00 per single project, as well as any scheduled meter replacement, and scheduled valve and fire hydrant replacement. LBCWD will collect all the ad valorem property taxes within the LBCWD until such time as EBSD's detachment from LBCWD is final. The cost of capital improvements in EBSD's water system will be paid from Emerald Bay derived property taxes until EBSD directly receives such Emerald Bay derived property taxes, at which time LBCWD will bill EBSD for such capital improvements, and EBSD shall pay LBCWD for the same.

(1) LBCWD will notify EBSD of any capital improvements to be made except in case of emergency.

(2) LBCWD shall keep a careful record of all material provided and services performed; LBCWD and EBSD shall meet annually in September to review such records. LBCWD shall provide an itemized billing statement to EBSD in support of LBCWD's billing upon request.

e. Contribution to Cost of Providing Water to EBSD. EBSD will annually pay LBCWD 7% of LBCWD's total contribution to the LBCWD reservoir reserve fund, so long as EBSD is a wholesale water customer of LBCWD. (As LBCWD presently contributes \$400,000 annually to such fund from property taxes, it is anticipated that EBSD's annual contribution to such LBCWD fund will be \$28,000.00.)

f. EBSD Surcharge. In addition to the payments required above by paragraph 2 of this Agreement, EBSD may request that LBCWD add to the bill LBCWD sends to EBSD customers, a surcharge as determined from time to time by EBSD, to the extent permitted by law. LBCWD shall pay EBSD within fifteen (15) days of each month the surcharge levied and received by LBCWD from EBSD's customers, from the previous month's billings.

g. Limited Increases. Any increase imposed on EBSD with respect to the wholesale cost of water, delivery charge, and administration and overhead expenses, will not exceed the increase imposed on LBCWD retail customers.

3. Shortages. Any MWD/MWDOC water shortage allocation, any service interruption, and/or MWD/MWDOC supply restrictions will be proportionately allocated to LBCWD and EBSD customers.

4. Meters.

a. All service connections to the EBSD water system shall be metered.

b. LBCWD has the right to test any and all meters in EBSD for accuracy, and repair and/or replace defective meters as necessary, at EBSD's expense.

c. EBSD authorizes LBCWD to estimate consumption and submit an estimated billing to EBSD's customer(s) (estimations will be based on historical usage when possible), for

consumption if necessary, due to a defective meter, the unauthorized taking of water, or the inability to obtain an accurate meter reading.

d. EBSD shall grant LBCWD access to all water meters in Emerald Bay at all times.

5. Unmetered Water. EBSD agrees that LBCWD shall bill EBSD quarterly for all unmetered water usage, including, but not limited to, the cost of any water theft, system flushing, fire fighting or testings, and all other hydrant use, authorized or unauthorized.

6. Additional Fees. EBSD shall pay the rates and fees indicated in the Fee Schedule for Emerald Bay; the fees charged EBSD and its customers will be the same as the fees charged LBCWD's customers. The impact of any increase or decrease in costs to LBCWD to provide services identified in the Fee Schedule will be passed on to EBSD and the Fee Schedule will be modified accordingly.

7. EBSD Customer Bills. LBCWD shall, on behalf of EBSD, bill each EBSD customer as part of its administrative services on a bi-monthly cycle, and receive all payments from EBSD customers. The billing will include a charge for the "wholesale" cost of water based upon the customer's metered consumption, in addition to the delivery cost, administration and overhead expense, and any surcharge legally imposed by EBSD, if any, but pursuant to EBSD's request, will be shown on the bill as a water rate, meter charge, and EBSD surcharge. EBSD will reimburse LBCWD for all costs due to non-payment of bills, tampering with, removal of, or obstruction of any water meter, after LBCWD is unable to collect from the customer. Should LBCWD thereafter collect any sums from such customers, already paid by EBSD, LBCWD shall credit EBSD in the amount of such payment. Thirty days before LBCWD sends an EBSD customer to an outside source for collection, LBCWD shall advise EBSD.

8. Cooperation.

a. LBCWD Requests. EBSD agrees to cooperate with all reasonable requests of LBCWD to enable LBCWD to provide the services described above.

b. Provision of Services. EBSD grants to LBCWD, the sole and exclusive right to operate and maintain the Emerald Bay Water Facilities, for the term of this Agreement. LBCWD will apply the same standards with respect to the provision of water in Emerald Bay as throughout the LBCWD.

c. Access. EBSD agrees to grant unrestricted access to LBCWD to Emerald Bay's Water Facilities for the purposes of providing water and services pursuant to this Agreement.

d. Water Shut-Off and Right to Sever Connections. LBCWD shall have the right to shut-off water flow, or sever connections between EBSD's water system and that of LBCWD, when necessary to perform maintenance, construction or repairs to any portion of the water system, or in the case of a threat to the public water supply, and LBCWD will provide EBSD prior notice, whenever possible.

e. Identification. LBCWD personnel shall carry, or wear, indicia identifying themselves as LBCWD personnel at all times when servicing Emerald Bay.

f. Compliance with Laws. EBSD grants LBCWD the right to implement and enforce all applicable Federal, State and local laws pertaining to the operation of the water system in Emerald Bay, including, but not limited to statutes contained in the California Water Code, Health & Safety Code, Business and Professions Code, and all other California laws and regulations, as well as all cross-connection control and water quality regulations. EBSD shall assume ultimate liability for any administrative actions generated by regulatory agencies as a result of conditions within EBSD's water system that are beyond the operational control of LBCWD.

9. Term of Agreement.

a. Effective Date. This Agreement will become effective on the date that LAFCO recognizes that EBSD has the authority to exercise its power to provide water service to Emerald Bay and EBSD's detachment from LBCWD is final, except that Paragraphs 10, and 13 through 21, inclusive, of this Agreement are effective immediately upon execution by LBCWD and EBSD. The water rate payers of Emerald Bay shall remain the LBCWD's retail customers until such time as LAFCO recognizes that EBSD has the authority to exercise its power to provide water service to Emerald Bay and EBSD's detachment from LBCWD is final.

b. Termination. This Agreement will continue in effect from and after its effective date for five (5) years. This Agreement shall automatically renew for subsequent five (5) year terms, unless EBSD terminates this Agreement by delivering to LBCWD, at least six (6) months prior to the end of any five (5) year term, a written notice stating EBSD's intention not to renew this Agreement, in which case this Agreement will terminate at the end of the five year term in which such notice is timely given LBCWD by EBSD; additionally, EBSD reserves the right to terminate this Agreement on six (6) months advance written notice should LBCWD cease being a subsidiary district of the City of Laguna Beach. Notwithstanding the foregoing, EBSD may not terminate this Agreement as to Paragraphs 10, and 13 through 21, inclusive, of this Agreement.

c. Lease of Capacity. In the event that EBSD terminates this Agreement and notices LBCWD of EBSD's intent not to renew this Agreement, as provided above in paragraph 9.b, EBSD shall have the right to negotiate with LBCWD and execute a lease, for reasonable and fair compensation, for a portion of LBCWD's capacity to transport water to EBSD to serve water in Emerald Bay. Notwithstanding the foregoing, LBCWD cannot be compelled to enter into and/or

execute a lease with EBSD if circumstances change after September 18, 2001, which make LBCWD's execution unreasonable.

d. Legal and Equitable Remedies. Because of the importance of the services and water to be provided by LBCWD to EBSD pursuant to the terms of this Agreement, in addition to the other rights and remedies that EBSD may have for a breach of this Agreement, the EBSD shall have the right to enforce this Agreement, and all of its provisions, by injunction, specific performance, or other relief in a court of equity.

10 Assets. LBCWD owns and shall continue to own all reservoirs, water distribution lines, pumping stations, water facilities, property, real and personal, water rights, including but not limited to groundwater rights, moneys and funds, including cash on hand, moneys due but uncollected, all reserves of LBCWD, and all other assets of every kind (all hereinafter referred to as "LBCWD assets"). At the termination of this Agreement (EBSD's non-renewal of this Agreement pursuant to paragraph 9.b above). EBSD shall not: (1) make a claim for continuation of the water supply made available by this Agreement, based on reliance, estoppel, intervening public use, prescription, water shortage emergency, or unforeseen or unforeseeable increases in demand, or any other cause, or (2) claim any entitlement of any LBCWD assets, or any refund by reason of any taxes, assessments, service charges, rentals, or rates collected by LBCWD or others. Nor will EBSD encourage, support, or finance the filing of a claim or lawsuit by any individual or entity with respect to any LBCWD asset of any kind, as Government Code § 57353 provides:

"No inhabitant, property owner, taxpayer, consumer, or user within territory detached from a district or city shall be entitled to either of the following:

(a) All or any part or to any payment on account of the moneys or funds, including cash on hand and moneys due but uncollected, or any property, real or personal, of the city or district.

(b) Any refund by reason of any taxes, assessments, service charges, rentals, or rates collected prior to the effective date of the detachment."

Notwithstanding the foregoing, as of the effective date of LAFCO's recognition that the EBSD has the authority to exercise its power to provide water service to Emerald Bay and Emerald Bay's detachment from LBCWD, the Emerald Bay Water Facilities shall become the property of EBSD, in their "as is" condition.

11. Indemnification.

a. Indemnification of LBCWD. Except to the extent caused by the negligence or willful misconduct of LBCWD, its agents, employees, officers, directors, commissioners, subcontractors, and independent contractors, EBSD shall exonerate, hold harmless, indemnify, and defend LBCWD, its agents, employees, officers, directors, commissioners, subcontractors, independent contractors, and customers, from any and all claims, obligations, liabilities, costs, demands, damages (whether direct or consequential), expenses, suits or causes of action, including, but not limited to, costs and attorney's fees, which may arise out of any injury to or death of any person, and/or damage to property, if such injury, death or damage arises out of or is attributable to or results from the negligent acts or omissions of EBSD, EBSD's principals, officers, directors, employees, representatives, agents, assigns, contractors, subcontractors, and/or customers.

b. Indemnification of EBSD. Except to the extent caused by the negligence or willful misconduct of EBSD, its agents, officers, directors, employees, independent contractors, customers,

residents of Emerald Bay and/or owners of property within Emerald Bay, or their agents, employees, tenants, guests, or independent contractors, LBCWD shall exonerate, hold harmless, indemnify, and defend EBSD from any and all claims, obligations, liabilities, costs, demands, damages (whether direct or consequential), expenses, suits or causes of action, including, but not limited to, costs and attorney's fees, which may arise out of any injury to or death of any person, and/or damage to property, if such injury, death or damage arises out of or is attributable to or results from the negligent acts or omissions of LBCWD, LBCWD's employees, representatives, agents, officers, directors, commissioners, assigns, contractors, and/or subcontractors, in the LBCWD or in Emerald Bay, relating to water service to and in Emerald Bay.

12. Insurance.

a. LBCWD shall name EBSD as an additional covered party under its Association of California Water Agencies Joint Powers Insurance Authority Memorandum of Liability Coverage, so long as the EBSD purchases all of Emerald Bay's potable water from LBCWD.

b. For so long as EBSD purchases water from LBCWD, EBSD shall procure and maintain public liability, property damage, and products liability insurance which includes coverage for EBSD's water operations and Emerald Bay Water Facilities, issued by a responsible insurance company authorized to do business in California, rated A+/XII or better in Best's Insurance Guide, insuring EBSD and its employees, and naming LBCWD as an additional insured, against all bodily injury, property damage, personal injury, and other loss or liability suffered in Emerald Bay, and/or caused by or connected with EBSD (its agents and/or employees), and/or Emerald Bay Water Facilities, and/or the provision of water to Emerald Bay, of not less than:

(1) \$5,000,000 for injury to or death of one person and, subject to the limitation for the injury or death of one person, of not less than \$10,000,000 for injury to or death of two or more persons as a result of any one accident or incident; and

(2) \$10,000,000 for property damage.

Each of the insurance policies obtained by EBSD shall include an endorsement that, before changing or canceling any policy, the issuing insurance company shall give EBSD and LBCWD at least 30 days' prior written notice. The insurance shall include broad form contractual liability coverage insuring against EBSD's indemnity obligations under this Agreement. Each policy shall provide that the insurance is primary and noncontributory, shall provide for severability of interests, and shall provide that an act or omission by the insured party or any additional insured does not void or reduce coverage afforded the insured party or any additional insured. Such limits of liability shall be increased, and modified or additional types of coverage shall be obtained, when changed circumstances reasonably so require.

c. LBCWD shall make a copy of its Memorandum of Liability Coverage available to EBSD on its request, and EBSD shall make a copy of its insurance policy available to LBCWD on its request.

13. Assignment. EBSD shall not sell, assign, transfer, or encumber this Agreement.

14. Notice. Any notice required to be given under this Agreement may be given by personal delivery or U.S. mail (notice shall be deemed communicated as of the date of personal delivery, or five days from mailing), as follows:

To EBSD:  
Emerald Bay Service District  
600 Emerald Bay  
Laguna Beach, CA 92651  
Attention: General Manager

To LBCWD:  
Laguna Beach County Water District  
306 Third Street  
Laguna Beach, CA 92651  
Attention: General Manager

15. Disbursement of JPA funds. EBSD shall cause, from the \$322,500 deposited by LBCWD and EBSD in a JPA account: (1) the return of \$275,000.00 to LBCWD (which was previously deposited in a JPA account), (2) the return to EBSD of the sum of \$22,500.00, and (3) the payment to EBSD of \$25,000 from such account.

16. Compromise Agreement and Mutual Release. In return for valuable consideration, receipt of which is hereby acknowledged, EBSD and the Emerald Bay rate payers hereby waive, release and forever discharge, any and all claims, demands, actions and causes of actions of any and every kind and character, known or unknown, which they may have against the LBCWD, its officers, directors, commissioners, agents, attorneys, employees, sub-contractors, independent contractors, and customers, arising out of or relating to EBSD's allegation that it did not receive notice of LAFCO proceedings with respect to LBCWD, including, but not limited to, LBCWD's reorganization as a subsidiary district of the City of Laguna Beach, EBSD's allegation that Emerald Bay is not represented by the ex officio Board of Directors of LBCWD, and the November, 2000 vitiation of both the Water Facilities Agreement and Joint Exercise of Powers Agreement Creating the Laguna Beach/Emerald Bay Public Facilities Authority ("JPA") entered into between LBCWD and EBSD. This release and the consideration for which it is provided is pursuant to a settlement and compromise of contested claims and shall not be construed by any party to be an admission of liability in any form or amount. EBSD and the rate payers of Emerald Bay expressly waive any and all rights under Section 1542 of the Civil Code of the State of California, which provides as follows:

"A general release does not extend to claims which the creditor does not know or suspect to exist in his favor at the time of executing the release, which if known by him must have materially affected his settlement with the debtor."

17. Integration Clause. This Agreement constitutes the entire understanding between LBCWD and EBSD regarding the subjects covered, and that understanding shall not be modified, terminated, or discharged except by a subsequent written agreement signed by both parties, except as provided herein.

18. Limitation. Nothing contained in this Agreement shall be construed to create a partnership or joint venture between the parties or to make either party the agent of the other. Neither party shall be or become liable or bound by any representation, act, omission, or agreement of the other which may be contrary to the provisions of this Agreement.

19. Attorneys' Fees and Costs. If any legal action or other proceeding is brought for the enforcement or interpretation of this Agreement, the prevailing party shall be entitled to recover its reasonable attorneys' fees and other costs incurred in that action or proceeding, in addition to any other relief to which it may be entitled. This provision applies to the entire Agreement.

20. Representation. Each party to this Agreement was represented by counsel in its negotiation and execution.

21. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of California.

22. Acts Beyond the Control of the Parties. In the event the performance of this Agreement by either party is prevented or delayed by act of God, war, civil insurrection, terrorism, state of emergency, an act of any public enemy, domestic unrest, the elements, fire, flood, storm, earthquake, strikes, lockouts, or by any law, regulation, or order of any federal, state, county, municipal authority, or any agency thereof, or by any other cause beyond the control of either party, such parties' performance, to the extent it is so prevented or delayed, shall be excused. However, nothing contained in this paragraph shall excuse the prompt payment of sums due as required by this

Agreement or the performance of any act rendered difficult solely because of the financial condition of the party required to perform the act.

IN WITNESS WHEREOF, the parties hereby have caused this Agreement to be executed the date first above written.

EMERALD BAY SERVICE DISTRICT

By *Vicki Chaudhry*

By *Paul Cox*

LAGUNA BEACH COUNTY WATER DISTRICT

By *Paul Cox*

By *Barbara M. Hickey*

APPROVED AS TO FORM:

STRADLING, YOCCA, CARLSON & RAUTH

By *Fritz Stradling*  
Fritz Stradling, Esq., Attorneys for Emerald Bay  
Service District

ROCKWELL & MEYER, INC.

By *Paula E. Meyer*  
Paula E. Meyer, Attorneys for Laguna Beach  
County Water District

EXHIBIT A

BOUNDARY MAP OF  
LAGUNA BEACH COUNTY WATER DISTRICT

LEGEND

----- LACUNA BEACH COUNTY WATER DISTRICT BOUNDARY

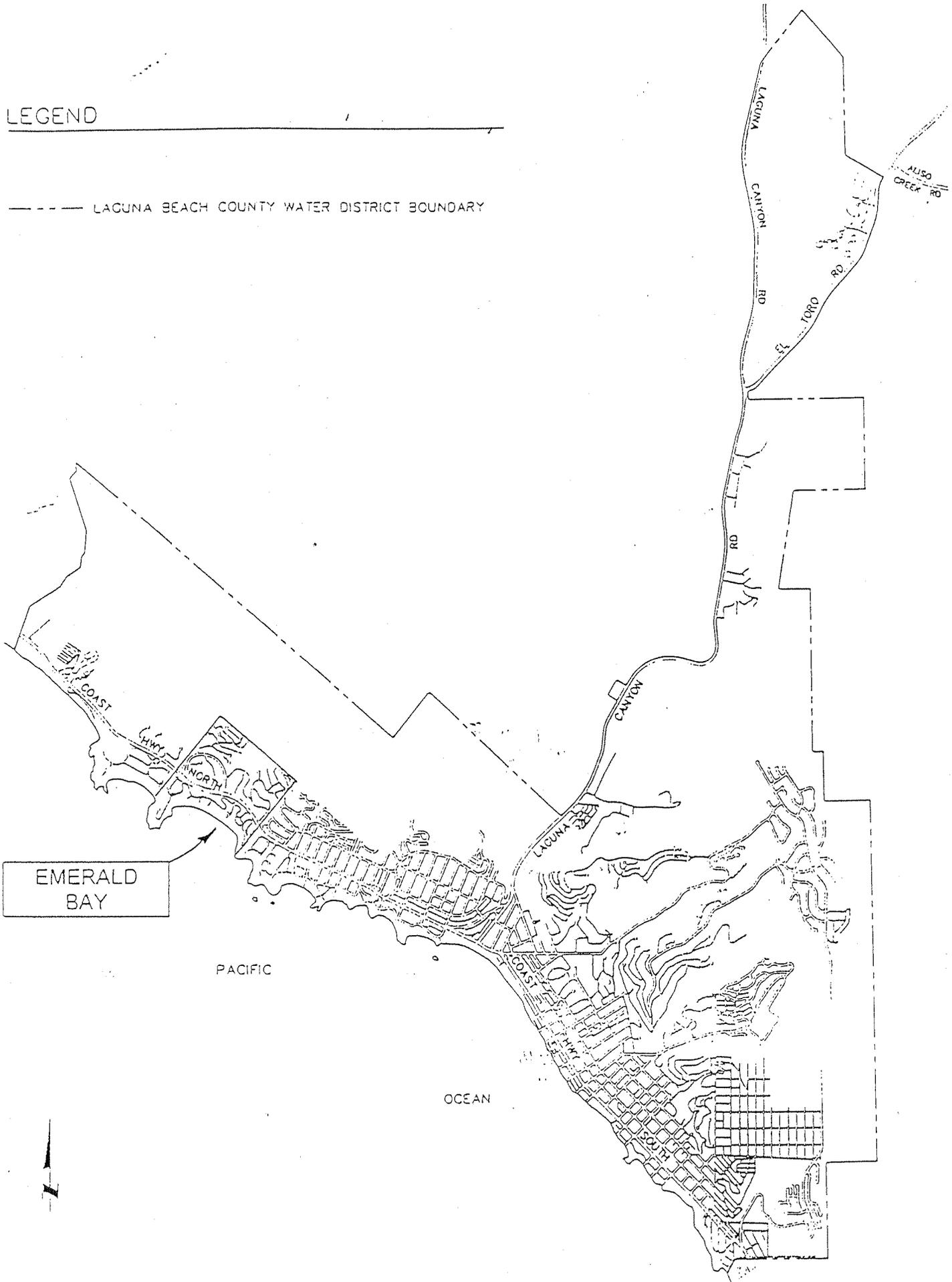
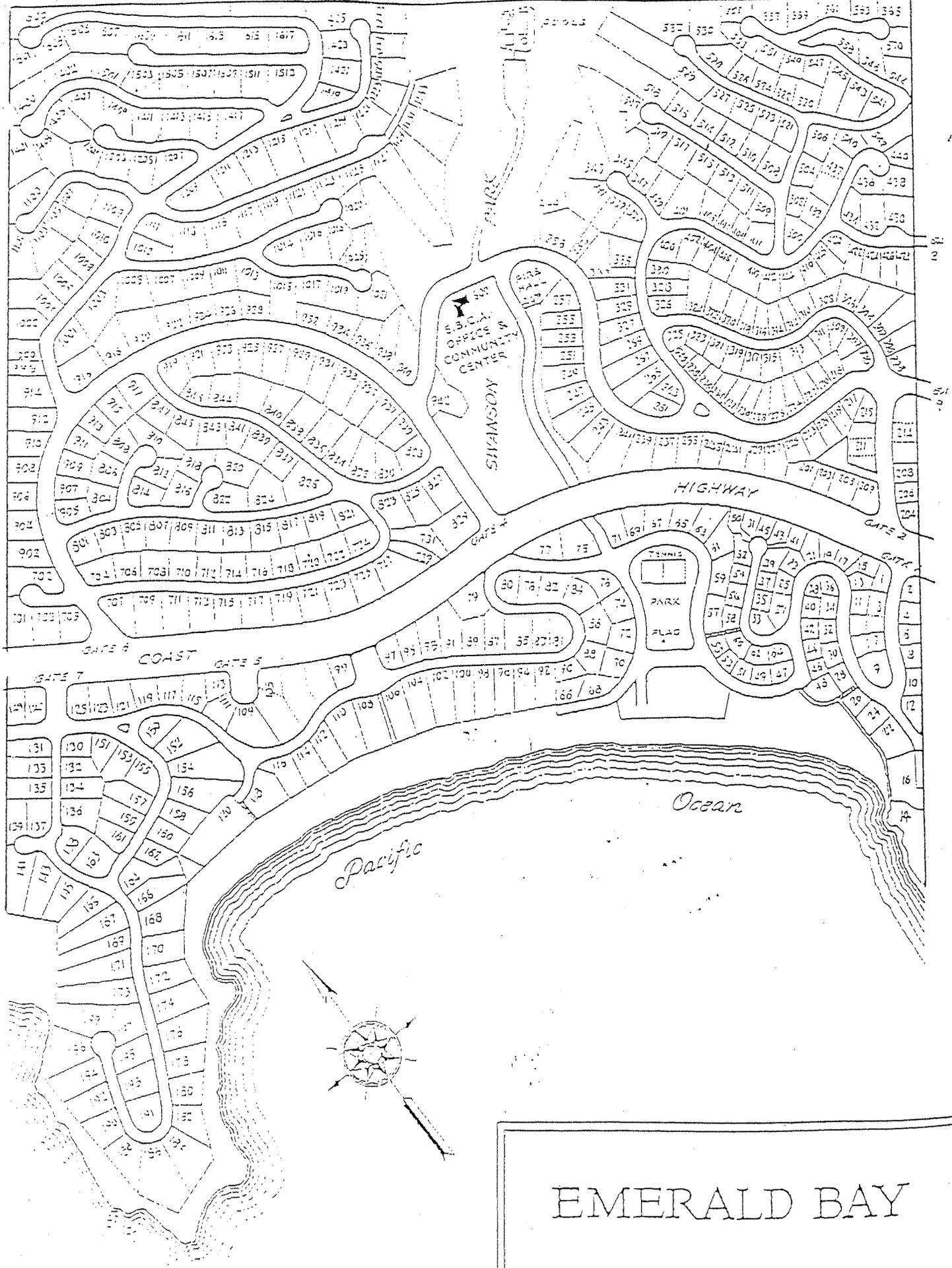


EXHIBIT B

BOUNDARY MAP OF  
EMERALD BAY



EMERALD BAY

## **Appendix E**

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### **1933 Court Judgment for Santa Ana River Basin**

#### **OCWD Groundwater Management Plan**

**(provided in electronic version)**

1 IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

2 IN AND FOR THE COUNTY OF ORANGE

3 - - -000- - -

4 E. E. CAMPBELL, et al.,  
5 Plaintiffs

No. 28524

6 -vs-

7 THE IRVINE COMPANY, a  
8 Corporation, et al.,  
9 Defendants

J U D G M E N T

Signed and filed June 13, 1933.

10  
11  
12 This cause came regularly on for trial in the above  
13 entitled court on the 13<sup>th</sup> day of June, 1933, before the court  
14 sitting without a jury, a jury having been waived; the trial  
15 was had upon the complaint of the plaintiffs as amended and the  
16 answers of the defendants Laguna Beach County Water District,  
17 the City of Newport Beach, Fairview Farms Water Company, and the  
18 Newport Mesa Irrigation District, and the amended answer of the  
19 defendant, The Irvine Company, a corporation, the cross-complaint  
20 of defendant The Irvine Company having been dismissed in accord-  
21 dance with the written stipulation of the parties to this action  
22 filed herein; the parties hereto appearing and being represented  
23 herein by their respective attorneys of record; and evidence  
24 both oral and documentary having been presented by the parties  
25 in support of their respective rights, title and claims as set  
26 forth in the pleadings, and the cause having been argued and  
27 submitted to the court for decision, and formal findings of fact  
28 and conclusions of law having been waived by written stipulation  
29 of all of the parties to this action filed herein, and the court  
30 being fully advised in the premises and after due deliberation,  
31 now renders its judgment herein as follows:  
32

1 IT IS ORDERED, ADJUDGED AND DECREED BY THE COURT

2 AS FOLLOWS:

3 I.

4 That within the coastal watershed of the Santa Ana  
5 River, a non-navigable stream in Orange County, California, and  
6 extending between the Santa Ana Mountains and the Pacific Ocean  
7 and entirely within said Orange County, there lies and exists  
8 an artesian or underground water basin sloping generally from  
9 said mountains to the sea, and embracing an area of approxi-  
10 mately 170,000 acres, more or less; that said Basin is known as  
11 the Santa Ana River Coastal Alluvial Basin, and will be here-  
12 after in this decree referred to as the Santa Ana River Basin;  
13 that said Basin is underlaid with common water-bearing strata  
14 which, in a state of nature, are saturated with water and through  
15 which percolates a continuous body of underground water in con-  
16 tact which has its source or origin for the most part in the  
17 general watershed of said Santa Ana River; that the natural bound-  
18 aries of said Santa Ana River Basin are hereby fixed and par-  
19 ticularly described as follows:

20  
21 Beginning at the point of intersection of zero ele-  
22 vation, U. S. G. S. Datum on the shore of the Pacific  
23 Ocean, with the west boundary line of section 13, town-  
24 ship 5 south, range 12 west, San Bernardino base and  
25 meridian; thence northerly to the northwest corner of  
26 said section; thence northeasterly in a straight line  
27 to the quarter section corner on the northerly line of  
28 section 13 township 5 south, range 12 west; San Bernardino  
29 base and meridian; thence continuing northerly one mile  
30 to the north one-quarter section corner of section one (1),  
31 township five (5) south range twelve (12) west, San Ber-  
32 nardino base and meridian; thence easterly along the town-  
ship line to the southwest corner of section thirty-one  
(31), township four (4) south, range eleven (11) west,  
San Bernardino base and meridian; thence northerly one  
mile to northwest corner of said section thirty-one (31),  
thence easterly one-half mile to the south one-quarter sec-  
tion corner of section thirty (30) said township four (4)  
south, range eleven (11) west, thence northerly one mile  
to the north one-quarter section corner of said section  
thirty (30); thence easterly one-half mile to the southwest  
corner of section twenty (20) of said township four (4)  
south, range eleven (11) west; thence northerly one and  
one-half miles to the west one-quarter section corner of  
section seventeen (17) of said township four (4) south,

1 range eleven (11) west; thence easterly one-half mile to  
2 center of said section seventeen (17); thence northerly one  
3 mile to the center of section eight (8); said township  
4 four (4) south, range eleven (11) west; thence easterly  
5 one mile to the center of section nine (9), said town-  
6 ship four (4) south, range eleven (11) west; thence  
7 northerly one-half mile to the north one-quarter section  
8 corner of said section nine (9); thence easterly one-half  
9 mile to the southwest corner of fractional section  
10 three (3), said township four (4) south, range eleven (11)  
11 west; thence northerly to the northwest corner of said  
12 fractional section three (3); thence easterly three miles  
13 along township line to the southwest corner of section  
14 thirty-one (31), township three (3) south, range ten (10)  
15 west, San Bernardino base and meridian; thence northerly  
16 three-fourths of a mile along the westerly boundary of  
17 said section thirty-one (31), township three (3) south,  
18 range ten (10) west, to the center line of Commonwealth  
19 Avenue, of the City of Fullerton; thence easterly along  
20 the said center line of Commonwealth Avenue and the said  
21 center line extended easterly to an intersection with the  
22 range line between township eight (8) south and township  
23 nine (9) south, San Bernardino base and meridian; thence  
24 southerly seven-tenths of a mile along said range line  
25 to its intersection with the center line of the main  
26 canal of the Santa Ana Valley Irrigation Company, thence  
27 along said center line of canal to the southwest corner  
28 of Block L of Gray Tract, as shown on a map recorded in  
29 Book 4, page 548 of Miscellaneous Records of Los Angeles  
30 County, California; thence easterly following the center  
31 line of Santiago Boulevard to Santiago Creek; thence  
32 southerly along said Santiago Boulevard to Chapman Avenue;  
thence westerly along Chapman Avenue to its intersection  
with Esplanade Street; thence southerly along the center  
line of Esplanade Street to its intersection with the  
center line of the upper or high line canal of the  
Santa Ana Valley Irrigation Company; thence southerly along  
the center line of said high line canal to a point in the  
southeasterly line of the northwesterly half of the easterly  
quarter of Block Thirteen of Irvine's Subdivision of Rancho  
San Joaquin and Lomas de Santiago and Flint and Sixby's  
allotment in Rancho Santiago de Santa Ana, as per map re-  
corded in Book 1, page 88 Miscellaneous Maps, of Orange  
County, State of California; thence southwesterly three-  
eighths of a mile to the southerly corner of said westerly  
quarter of the easterly quarter of Block Thirteen; thence  
southeasterly one-half of a mile to the westerly corner of  
the southerly quarter of the northerly quarter of Block  
Forty-three; thence northeasterly one-quarter of a mile to  
the northerly corner of the said southerly quarter of the  
northerly quarter of Block Forty-three; thence southeasterly  
one-quarter of a mile to the easterly corner of the said  
southerly quarter of the northerly quarter of Block Forty-  
three; thence northeasterly one-quarter of a mile to the  
easterly corner of the northerly quarter of said Block  
Forty-three; thence southeasterly three and one-half miles  
along the northeasterly boundary of Blocks Forty-three,

Sixty-five, Eighty-three and One Hundred Six to the easterly corner of said block One Hundred Six; thence southwesterly one-half of a mile to the southerly corner of the easterly quarter of said Block One Hundred Six; thence southeasterly two miles to the easterly corner of the southerly quarter of Block One Hundred Forty-two; thence southwesterly one mile to the southerly corner of the easterly quarter of Block One Hundred Forty-one; thence southeasterly along the center lines of blocks One Hundred Fifty-four and One Hundred Seventy-four to a point of intersection with the southeasterly boundary line of said Irvine's subdivision, said point being the easterly corner of the southwesterly one-half of said Block One Hundred Seventy-four; thence southwesterly along said boundary line to the southerly corner of the northeasterly one-half of Block One Hundred Seventy-three; thence northwesterly to the center of said Block One Hundred Seventy-three, being at the easterly corner of the westerly quarter thereof; thence southwesterly two miles to the southerly corner of the northerly quarter of Block One Hundred Seventy-one; thence northwesterly one and three-quarters miles to the easterly corner of the northerly quarter of the southerly quarter of Block One Hundred Thirty-eight; thence southwesterly one-quarter of a mile to the southerly corner of said northerly quarter of the southerly quarter of Block One Hundred Thirty-eight; thence northwesterly one mile to the northerly corner of the southerly quarter of the southerly quarter of Block One Hundred Twenty-four; thence southwesterly one-quarter of a mile to the westerly corner of said southerly quarter of the southerly quarter of Block One Hundred Twenty-four; thence northwesterly one and one-quarter miles along the northeasterly lines of blocks One Hundred Twenty-five and One Hundred One to the northerly corner of the easterly quarter of said Block One Hundred One; thence southwesterly three-quarters of a mile to the southerly corner of the northeasterly half of the westerly quarter of said Block One Hundred One; thence northwesterly one-half of a mile to the westerly corner of said northeasterly half of the westerly quarter of block One Hundred One; thence southwesterly one-quarter of a mile to the southerly corner of the southerly quarter of Block Eighty-eight; thence northwesterly one-quarter of a mile to the westerly corner of the southerly quarter of the southerly quarter of said Block Eighty-eight; thence southwesterly one-quarter of a mile to the southerly corner of the northerly quarter of the easterly quarter of Block Eighty-nine; thence northwesterly one mile to the center of the easterly quarter of Block Fifty-nine; thence northeasterly one-quarter of a mile to the easterly corner of the northwesterly half of the easterly quarter of said Block Fifty-nine; thence northwesterly one mile to the easterly corner of the northwesterly half of the easterly quarter of Block Forty-nine; thence southwesterly one mile to the southerly corner of the northwesterly half of the southerly quarter of said Block Forty-nine; thence northwesterly one and three-quarters miles to the westerly corner of Block 7, being on the northwesterly boundary line of said Irvine's subdivision; thence in a northwesterly direction to the northwest corner of Lot 2, Block D of the Berry Tract, as per map in Book 9, page 6 of Miscellaneous Records of Los Angeles County, California; thence west along the line between Townships 5 and 6 south, Range 10 west, S. E. R. A. M., to the Northwest corner of Block numbered 1 of said

Berry Tract; thence south along the center line of the improved county road which is the west boundary of said Berry Tract, and said line produced south to an intersection with the center line of Newport Avenue; thence southwesterly along the said center line to its intersection with Fifteenth Street in Costa Mesa; thence southeasterly along the center line of said Fifteenth Street to its intersection with the center line of Irvine Avenue; thence along the boundary line of the City of Newport Beach and the projection of said boundary line to the most westerly corner of Corona del Mar; thence following zero elevation of sea level to the easterly side of the entrance to Newport Bay; thence crossing the entrance to Newport Bay; thence following said zero elevation in a generally northwesterly direction and along the coast line of the Pacific Ocean to the place of beginning.

II.

That plaintiffs Santa Ana Valley Irrigation Company and Anaheim Union Water Company, and each of them, are non-profit corporations organized under the laws of the State of California, and are engaged in supplying water from said common water-bearing strata and continuous body of underground percolating waters in said Santa Ana River Basin, as well as from the surface flow of said Santa Ana River, to their respective stockholders for irrigation and domestic purposes upon lands owned by them and lying <sup>in large part</sup> ~~entirely~~ within the boundaries of said Basin.

III.

That plaintiff The City of Anaheim is a municipal corporation of the sixth class situated entirely within said Santa Ana River Basin; that plaintiff, The City of Fullerton is a municipal corporation of the sixth class situated in part within said Basin; that each of said plaintiff cities is supplying water from said common water-bearing strata and continuous body of underground percolating waters in said Basin to their respective inhabitants for domestic, irrigation and other municipal uses.

IV.

1 That the plaintiff E. E. Campbell is the owner of  
2 the lands described in paragraph XXVI of the plaintiff's com-  
3 plaint filed herein; that plaintiff L. J. Bushard is the owner  
4 of the lands described in paragraph XXVII of said complaint;  
5 that plaintiff J. M. Pope is the owner of the lands described  
6 in paragraph XXVIII of said complaint; that plaintiffs R. A.  
7 Chaffee and Mabel E. Chaffee, husband and wife, are the owners  
8 of the land described in paragraph XXIX of said complaint; that  
9 plaintiffs W. C. Maurehan and Anna C. Maurehan, husband and wife,  
10 are the owners of the lands described in paragraph XXX of said  
11 complaint; that plaintiffs R. J. McFadden and Mary A. McFadden,  
12 husband and wife, are the owners of the lands described in para-  
13 graph XXXI of said complaint; that plaintiff J. J. Deyer is the  
14 owner of the lands described in paragraph XXXII of said complaint;  
15 that plaintiff H. D. Mayer is the owner of the lands described in  
16 paragraph XXXIII of said complaint; that all said lands are  
17 situated within the boundaries of said Santa Ana River Basin and  
18 overlie said common water-bearing strata and continuous body of  
19 underground percolating waters therein.

V.

21 That defendant THE IRVINE COMPANY, a corporation is  
22 the owner of the following described tracts of land, to-wit:

23 Parcel 1. The East Half (E $\frac{1}{2}$ ) of the Northeast Quarter  
24 (NE $\frac{1}{4}$ ) of the Southwest Quarter (SW $\frac{1}{4}$ ) of the  
25 Northeast Quarter (NE $\frac{1}{4}$ ) of Section Eighteen  
26 (18) Township Six (6) South, Range Ten (10)  
West, S. B. N. & M.

27 ALSO, The North Half (N $\frac{1}{2}$ ) of the Southeast  
28 Quarter (SE $\frac{1}{4}$ ) and the Southwest Quarter (SW $\frac{1}{4}$ ) of  
29 the Southeast Quarter (SE $\frac{1}{4}$ ) of Section Seven  
30 (7), Township Six (6) South, Range Ten (10)  
31 West, S. B. N. & M.

32 Parcel 2. A tract of land comprising 22,000 acres, more or  
less, described and referred to in paragraph XXXI  
of the amended answer of said defendant, The Irvine  
Company, and particularly described as follows, to-  
wit:

Beginning at the point of intersection of the  
center line of Newport Road with the center line  
of 17th Street at the northerly corner of Lot 241

2 ~~FILED IN THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF CALIFORNIA~~  
3 Joaquin and Tomas de Santiago and Ylino "and others" as  
4 allotment in Rancho Santiago de Santa Ana, as per  
5 map recorded in Book 1, Page 88 Miscellaneous Maps  
6 of Orange County, State of California; thence south-  
7 easterly along the center line of said 17th Street  
8 a distance of about three-quarters of a mile to the  
9 easterly corner of the westerly quarter of the  
10 Easterly quarter of Block Thirteen of said Irvine's  
11 Subdivision; thence southwesterly one-quarter of a  
12 mile to the southerly corner of said westerly quarter  
13 of the easterly quarter of Block Thirteen; thence  
14 southeasterly one-half of a mile to the westerly corner  
15 of the southerly quarter of the northerly quarter  
16 of Block Forty-three; thence northeasterly one-  
17 quarter of a mile to the northerly corner of the said  
18 southerly quarter of the northerly quarter of Block  
19 Forty-three; thence southeasterly one-quarter of a  
20 mile to the easterly corner of the said southerly  
21 quarter of the northerly quarter of Block Forty-three;  
22 thence northeasterly one-quarter of a mile to the  
23 easterly corner of the northerly quarter of said Block  
24 Forty-three; thence southeasterly three and one-half  
25 miles along the northeasterly boundary of Blocks  
26 Forty-three, Sixty-five, Eighty-three and One Hundred  
27 Six; thence southwesterly one-half of a mile to the  
28 southerly corner of the easterly quarter of said  
29 Block One Hundred Six; thence southeasterly two miles  
30 to the easterly corner of the southerly quarter of  
31 Block One Hundred Forty-two; thence Southwesterly one  
32 mile to the southerly corner of the easterly quarter  
of Block One Hundred Forty-one; thence southeasterly  
along the center line of blocks One Hundred Fifty-four  
and One Hundred Seventy-four to a point of intersection  
with the southeasterly boundary line of said Irvine's  
subdivision, said point being the easterly corner of  
the southwesterly one-half of said Block One Hundred  
Seventy-four; thence southwesterly along said boundary  
line to the southerly corner of the northeasterly one-  
half of Block One Hundred Seventy-three; thence north-  
westerly to the center of said Block One Hundred  
Seventy-three being at the easterly corner of the  
westerly quarter thereof; thence southwesterly two  
miles to the southerly corner of the northerly quarter  
of Block One Hundred Seventy-one; thence northwesterly  
one and three-quarters miles to the easterly corner of  
the northerly quarter of the southerly quarter of Block  
One Hundred Thirty-eight; thence southwesterly one-  
quarter of a mile to the southerly corner of said  
northerly quarter of the southerly quarter of Block  
One Hundred Thirty-eight; thence northwesterly one mile  
to the northerly corner of the southerly quarter of  
the southerly quarter of Block One Hundred Twenty-four;  
thence southwesterly one-quarter of a mile to the  
westerly corner of said southerly quarter of the  
southerly quarter of Block One Hundred Twenty-four;  
thence northwesterly one and one-quarter miles along  
the northeasterly lines of blocks One Hundred Twenty-  
five and One Hundred One to the northerly corner of the  
easterly quarter of said Block One Hundred One; thence  
southwesterly three-quarters of a mile to the south-  
erly corner of the northeasterly half of the westerly

1 quarter of said Block One Hundred One; thence  
2 northwesterly one-half of a mile to the westerly  
3 corner of said northeasterly half of the westerly  
4 quarter of Block One Hundred One; thence southwesterly  
5 one-quarter of a mile to the southerly corner of  
6 the southerly quarter of Block Eighty-eight; thence  
7 northwesterly one-quarter of a mile to the westerly  
8 corner of the southerly quarter of the southerly  
9 quarter of said Block Eighty-eight; thence south-  
10 westerly one-quarter of a mile to the southerly  
11 corner of the northerly quarter of the Easterly  
12 quarter of Block Eighty-nine; thence northwesterly  
13 one mile to the center of the easterly quarter of  
14 Block Fifty-nine; thence northeasterly one-quarter  
15 of a mile to the easterly corner of the northwesterly  
16 half of the easterly quarter of said Block Fifty-  
17 nine; thence northwesterly one mile to the easterly  
18 corner of the northwesterly half of the easterly  
19 quarter of Block Forty-nine; thence southwesterly  
20 one mile to the southerly corner of the northwesterly  
21 half of the southerly quarter of said Block Forty-  
22 nine; thence northwesterly one and three-quarters  
23 miles to the westerly corner of Block 7, being on  
24 the Northwesterly boundary line of said Irvine's  
25 Subdivision; thence northeasterly along the north-  
26 westerly boundary line of Irvine's Subdivision to  
27 the point of beginning.

28 **EXCEPTING** therefrom the following parcels of  
29 said subdivision not now owned by said defendant,  
30 The Irvine Company:

31 The most westerly two acres of Lot 124, Block 7,  
32 Lot 131 Block 49; southeasterly half of Lot 118  
33 Block 8, Lots 116, 99 and 100 Block 9, Lots 65, 66,  
34 67, 80 and 81 Block 10, Lots 49, 50 and 64 Block 11  
35 and the northeasterly half of Block 11, the northerly  
36 one quarter of Lot 44 and the southeasterly half of  
37 Lot 38 Block 45, all of Block 12, except the easterly  
38 5 acres of Lot 15 and the northerly one quarter of  
39 Lot 14, all of Block 13, the westerly five acres of  
40 Lot 340 and the northerly 10 acres of Lot 39, Block  
41 43, Tracts 232 recorded in Book 14 page 8 of Mis-  
42 cellaneous Maps, Records of Orange County, California,  
43 except Lots F-1, F-2, F-3, F-4, E-3, northwesterly  
44 one-half of E-4, Lots 4-10, D-11 and the northwesterly  
45 one halves of C-10 and C-11 of said tract 233; the  
46 northeasterly sixty acres of Lot 178 Block 84, the  
47 northwesterly eighty two acres of Lot 183 and the  
48 southeasterly 365 foot strip of Lot 186 and Lot 185  
49 of Block 85, the southeasterly 66 acres of Lot 192,  
50 Block 86, Lot 254 Block 103, Lot 253 Block 104, the  
51 northerly five acres of the westerly one quarter of  
52 Lot 239 Block 100, the most southerly two acres  
53 Lot 242 Block 121, the northwesterly one half of Lot  
54 259 Block 123.

55 That defendant LAGUNA BEACH COUNTY WATER DISTRICT is  
56 the owner of the following described tract of land, to-wit:

1 The Southwest Quarter (SW $\frac{1}{4}$ ); the Northwest  
2 Quarter (NW $\frac{1}{4}$ ) and the Northeast Quarter (NE $\frac{1}{4}$ )  
3 all in and of the Northwest Quarter (NW $\frac{1}{4}$ )  
4 of Section Eighteen (18), Township Six (6)  
5 South, Range Ten (10) West, S. B. B. & M., con-  
6 taining 120 acres.

7 That the defendant, THE CITY OF NEWPORT BEACH, is the  
8 owner of the following described tracts of land, to-wit:

9 Parcel 1: All that certain land situated in the Rancho  
10 Santiago de Santa Ana, County of Orange, State of  
11 California, described as follows:

12 Beginning at Station 112 in the West boundary of  
13 said Rancho Santiago de Santa Ana; running thence  
14 South 78° 23' 45" West along the said boundary line  
15 of said Rancho Santiago de Santa Ana 251.47 feet to  
16 an intersection with the center line of Fairview  
17 Avenue; thence south 1° 03' 30" East along the said  
18 center line of Fairview Avenue 1036.66 feet to an  
19 intersection with the center line of Huntzinger  
20 Street; thence north 88° 45' East along the center  
21 line of said Huntzinger Street 1077.39 feet; thence  
22 North 1° 15' West 1512.63 feet; thence south 89°  
23 04' West 643.52 feet to a point in the West boundary  
24 line of said Rancho Santiago de Santa Ana; thence  
25 South 2° 27' West along the said boundary line 403.92  
26 feet to the point of beginning.

27 Parcel 2. All that certain land situated in the Rancho Los  
28 Bolsas, County of Orange, State of California, and  
29 described as follows:

30 In the Rancho Los Bolsas, and described according to  
31 a sectionized survey of said Rancho, as One (1) acre  
32 in the Southwest corner of the North one-half (N $\frac{1}{2}$ )  
of the Northwest quarter (NW $\frac{1}{4}$ ) of the Southeast quarter  
of Section 18, Township 6 South, Range 10 West,  
S. B. B. & M., being 10 rods from North to South,  
bounded on the West by the East line of the County  
Road, and 16 rods from East to West; bounded on the  
South by the property of the Willow Land Company;  
reserving therefrom for roads, railroads and ditches  
a strip of land 30 feet wide along, adjoining and each  
side of the township and section lines, and a strip  
20 feet wide along, adjoining and each side of the  
quarter section lines, also reserving the use and  
control of cienegas and natural streams of water, if  
any, naturally upon, flowing across, into or by said  
land, also a right of way for and to construct irri-  
gation or drainage ditches through said tract to  
irrigate or drain the adjacent land.

33 Parcel 3. All that certain land situated in the County of Orange,  
34 State of California, described as follows:

35 Commencing at a 4 x 4 post at the Northwest corner  
36 of Section 8, Township 6 South, Range 10 West, S.B.B.  
37 & M.; running thence East 28.80 chains; thence South  
38 7° West 21.48 chains; thence South 7° West 18.76  
39 chains; thence West 23.23 chains to the West section

1 place of beginning, containing about 143.97 acres.  
2 Excepting and reserving therefrom the following de-  
3 scribed tract:

4 Commencing at the point where the south line of the  
5 Northwest quarter of Section 8, Township 6 South,  
6 Range 10 West, S. B. B. & M., intersects the eastern  
7 boundary of the Rancho Los Bolsas; running thence  
8 North 7° East along said boundary line 2625 feet;  
9 thence South 88° 45' West 839 feet; thence South 31°  
10 30' East 468 feet; thence South 2° West 635 feet; thence  
11 South 24° West 367.3 feet; thence South 67° 30'  
12 West 283 feet; thence South 43° 30' West 236 feet; thence  
13 South 27° 45' West 697 feet; thence South 3° West  
14 341 feet to the south line of the northwest quarter  
15 of said Section 8; thence East 1258.5 feet to the  
16 place of beginning containing 50.91 acres of land.

17 Parcel 4. All that certain land situated in the County of  
18 Orange, State of California, described as follows:  
19 Beginning at a point in the easterly line of the  
20 County Road, running north and south through the  
21 center of section 18, township 6 south, Range 10  
22 West, which point is 220 feet southerly of the  
23 northerly line of the southeast quarter of Section  
24 18, Township 6 South, Range 10 West, S. B. B. & M.,  
25 said distance being measured along the easterly line  
26 of the aforesaid County road; thence easterly along  
27 a line which is 220 feet southerly of and parallel  
28 with the northerly line of the aforesaid southeast  
29 quarter of Section 18, a distance of 495 feet to a  
30 point; thence southerly along a line which is 495 feet  
31 easterly of and parallel with the easterly line of the  
32 aforesaid County Road, a distance of 440 feet to a  
point in the southerly line of the northerly one-half  
of the northwest quarter of the southeast quarter of  
the aforesaid Section 18; thence westerly along the  
southerly line of the northerly one-half of the  
northwest quarter of the southeast quarter of Section  
18, a distance of 198 feet to a point, which point  
marks the southeasterly corner of a one acre tract of  
land now owned by the City of Newport Beach; thence  
northerly along the east line of said property owned  
by the city of Newport Beach, a distance of 185 feet,  
to the northeasterly corner thereof; thence westerly  
along the northerly line of said property owned by  
the city of Newport Beach, a distance of 297 feet to  
the easterly line of the aforesaid County Road; thence  
northerly along the easterly line of said County Road,  
a distance of 275 feet to a point, the place of  
beginning.

33 That defendant FAIRVIEW FARMS WATER COMPANY, a corpora-  
34 tion, is the owner of the following described tracts of land,  
35 to-wit:

36 Parcel 1. Beginning at the Northwest corner of 5 acres of  
37 land conveyed by H. D. Mayer to Newport Mesa  
38 Irrigation District by deed recorded in Book 360,  
39 Page 341 of Deeds, Records of Orange County, Cali-  
40 fornia, and running thence West 557.23 feet to a

1 point; thence South 389.09 feet to a point; thence  
2 West 849.63 feet to a point; thence North 649.50  
3 feet to a point in the North line of the Southeast  
4 Quarter (SE $\frac{1}{4}$ ) of Section Eighteen (18), Township  
5 Six (6) South, Range Ten (10) West, S. B. B. & M.;  
6 thence East along the North line of the Southeast  
7 Quarter (SE $\frac{1}{4}$ ) of said Section, 1406.86 feet to the  
8 Northwest corner of land conveyed by H. D. Meyer to  
9 H. H. Cotton and L. T. Bradford by deed recorded in  
10 Book 345, page 812 of Deeds, Records of Orange  
11 County, California; thence South along the West line  
12 of land conveyed to H. H. Cotton and L. T. Bradford  
13 to the point of beginning, estimated to contain  
14 15 acres.

15  
16  
17 Parcel 2. Beginning at the East quarter corner of Section  
18 Eighteen (18), Township Six (6) South, Range Ten  
19 (10) West, S. B. B. & M., thence South 89° 41' West  
20 67.70 feet to a stake, the point of beginning; thence  
21 South 89° 41' West 418.06 feet to a stake, said stake  
22 being the Northwest corner of the 5 acre tract sold  
23 to H. H. Cotton and L. T. Bradford by Henry D. Meyer;  
24 thence South 0° 19' East 260.5 feet to a stake;  
25 thence North 89° 41' East 418.06 feet to a stake;  
26 thence North 0° 19' West 260.5 feet to the point  
27 of beginning, containing 2.5 acres, more or less.

28  
29  
30 That defendant NEWPORT MESA IRRIGATION DISTRICT is the  
31 owner of the following described tracts of land, to-wit:

32  
33  
34 Commencing at the Southwest corner of a tract of  
35 five acres conveyed to L. T. Bradford and H. H.  
36 Cotton by deed recorded in Book 229, page 246 of  
37 Deeds, records of said Orange County, and running  
38 thence South 389.09 feet to a point; thence at  
39 right angles East and parallel with the South line  
40 of said five acre tract 500.05 feet to the Easterly  
41 boundary line of the Rancho Los Bolsas; thence  
42 North 20° 45' West along said line 82.34 feet to  
43 station 83 of said Rancho; thence North 34° 15'  
44 East 330 feet to Station 84 of said Rancho; thence  
45 North 46° 30' East 27.12 feet to the Southeast corner  
46 of said five acre tract and thence West along  
47 the South line of said tract 698.04 feet to the  
48 point of beginning, estimated to contain five acres  
49 of land.

50  
51 Also, a portion of the Northeast quarter of the  
52 Southeast Quarter of Section Eighteen, Township Six  
53 South, Range Ten West, S. B. B. & M., more particu-  
54 larly described as follows: Beginning at the North-  
55 west corner of a tract of five acres conveyed by E. D.  
56 Meyer to Newport Mesa Irrigation District by deed  
57 dated June 2nd, 1920, recorded June 9th, 1920, in  
58 Book 360, page 341 of Deeds, records of said Orange  
59 County (being the five acre tract hereinabove des-  
60 cribed) and running thence West 557.23 feet to a  
61 point; thence South 389.09 feet to a point; thence  
62 East 557.23 feet, more or less, to the Southwest  
63 corner of the five acre tract above referred to;

1 running thence North along the West line of said  
2 five acre tract 389.09 feet to the point of be-  
3 ginning.

4 VI.

5 That running parallel with the shoreline of the Pacific  
6 Ocean and across the Santa Ana River and the lower end of said  
7 Santa Ana River Basin, and approximately one-fourth to three  
8 quarters of a mile inland from said coast line, is a barrier or  
9 fold in the tertiary sediments which is impervious to percolating  
10 waters and which, at some points, comes to the surface of the  
11 ground and elsewhere lies beneath the surface of the ground at  
12 a distance of approximately 300 feet or more; that imposed upon  
13 said fold or barrier is a deposit of silts, gravel and other  
14 porous alluvium to a height of from three to six feet above sea  
15 level; that the underground waters in said Basin will percolate  
16 and seep through said porous alluvium into the Pacific Ocean when  
17 the plane or level thereof in said Basin behind and inland from  
18 said fold or barrier rises above sea level, and when said under-  
19 ground waters are so percolating and seeping through said porous  
20 alluvium, the same prevent any salt water from the ocean from  
21 seeping or percolating into said Basin; that immediately over,  
22 behind and inland from said impervious fold or barrier there  
23 has been formed and there exists and lies in the lower or coastal  
24 end of said Basin a local area or region of high water plane  
25 extending approximately three miles inland from said barrier,  
26 which local area or region is filled with porous and alluvial  
27 deposits to a height of from three to twenty feet above sea  
28 level, which deposits are, in a state of nature, saturated with  
29 water; that throughout each year said underground waters in said  
30 local area or region at the lower or coastal end of said Basin  
31 rise to such height in the porous underground strata underlying  
32 the same and above and inland from the said barrier or fold as to

1 produce, and water is produced and exists and will hereafter be  
2 produced and exist, in said local area or region, throughout each  
3 year, a surplus of water amounting to 7500 acre feet, which said  
4 surplus is and will be in excess of the amount of water in said  
5 underground strata required to exclude the sea water from said  
6 Basin as aforesaid, regardless of whether or not the average supply  
7 of water to the upper or inland portions of said Basin is over-  
8 drawn or depleted, and in excess of the quantity of water required  
9 for the reasonable needs of the lands overlying said basin and  
10 lands overlying said local area or region of high water plains as  
11 aforesaid; that said surplus waters in said local area or region  
12 find their way by percolation or surface flow into the Pacific  
13 Ocean and are lost therein without benefiting any of the over-  
14 lying land owners in said Santa Ana River Basin, and that all said  
15 surplus waters have in the past gone to waste and have been lost,  
16 and unless diverted and put to beneficial use by the defendants  
17 The Irvine Company, City of Newport Beach and Laguna Beach County  
18 Water District as hereinafter specified, will continue to go to  
19 waste and be lost into the Pacific Ocean.

21  
22 VII.

23 That all the lands belonging to the defendants referred  
24 to in paragraph V of this decree are situated within the bound-  
25 aries of said Santa Ana River Basin and overlie said common  
26 water-bearing strata and continuous body of underground percol-  
27 ating waters therein; that all said lands, except the lands  
28 belonging to the defendant The Irvine Company, in Irvine's Sub-  
29 division of the Ranches San Joaquin and Lomas de Santiago, and  
30 Flint & Bixby's Allotment in Rancho Santiago de Santa Ana, des-  
31 cribed and referred to as parcel 2 in paragraph V of this decree,  
32 are situated within the coastal area or region of high water  
plains and overlie the local surplus of water therein, as herein-

1 above described.

2 VIII.

3 That defendant The Irvine Company is a corporation  
4 organized and existing under the laws of the State of West Vir-  
5 ginia, and is authorized to transact and is transacting business  
6 in the County of Orange, State of California; that said defendant  
7 The Irvine Company, a corporation, and its successors and assigns  
8 has the right and is entitled to pump, take, divert, transport  
9 and/or carry away from said surplus underground waters lying,  
10 being and percolating in and through the coastal area or region  
11 in said Santa Ana River Basin above described, at such time or  
12 times and at such rate or rates as said defendant The Irvine  
13 Company, a corporation, may desire or see fit, for domestic,  
14 irrigation and other beneficial uses upon lands now owned by said  
15 defendant The Irvine Company situated outside of the boundaries  
16 of said basin, as follows: lands lying between Newport Bay and  
17 Irvine Road, and lands lying in the San Joaquin Hills sloping  
18 southwesterly and northwesterly from the crest line or topographic  
19 divide thereof and draining either into the Pacific Ocean or  
20 into Newport Bay in the watershed of said Santa Ana River, a  
21 quantity of water amounting to but not exceeding 4500 acre feet  
22 during each year hereafter.

23 That the pumping, taking, diverting, transporting and  
24 using annually hereafter by said defendant, The Irvine Company,  
25 of said 4500 acre feet of said surplus waters in said local area  
26 or region in said Basin, as hereinabove decreed, or any part  
27 thereof, will not hereafter cause the plans or level of said local  
28 surplus waters to be lowered to such extent as to allow the water  
29 of the Pacific Ocean to seep or percolate into said Santa Ana River  
30 Basin and/or does not and will not hereafter in any manner deprive  
31 the plaintiffs, or any of them, or any other owners of land over-  
32 lying said Basin, of any waters which they have heretofore been

1 lawfully taking and using from said Basin, nor deprive them or any  
2 of them of any waters therein to which they or any of them are in  
3 any manner entitled, and does not and will not hereafter in any  
4 manner affect or injure or damage said plaintiffs, or any of them,  
5 or any such land owner within said Basin in any respect whatsoever.

## 6 II.

7 That defendant City of Newport Beach is a municipal cor-  
8 poration of the sixth class situated wholly within said Santa Ana  
9 River Basin, except that portion known as the Corona Del Mar area,  
10 and is supplying water from the common water bearing strata, and  
11 continuous body of percolating waters in said Basin, to its inhabi-  
12 tants for domestic and other municipal uses, within said Santa Ana  
13 River Basin; that said City of Newport Beach is also supplying water  
14 from said local surplus in said coastal area or region, within said  
15 Santa Ana River Basin, to its inhabitants for domestic and other  
16 municipal uses, in that portion of Newport Beach known as the Cor-  
17 ona Del Mar area; that said defendant, City of Newport Beach, has  
18 the right and is entitled to pump, take, divert, transport and/or  
19 carry away from the surplus underground waters lying, being and  
20 percolating in and through said coastal area or region in said Basin  
21 at such time or times, or at such rate or rates as said defendant,  
22 City of Newport Beach, may desire or see fit for domestic and other  
23 municipal purposes for its inhabitants residing in that portion of  
24 the boundaries of said Basin, a quantity of water amounting to, but  
25 not exceeding 700 acre feet, during each year hereafter.

26 That the pumping, taking, diverting, transporting and  
27 using annually hereafter by said defendant The City of Newport  
28 Beach of said 700 acre feet of said surplus waters in said local  
29 area or region in said Basin, as hereinabove decreed, or any part  
30 thereof, will not hereafter cause the plane or level of said  
31 local surplus waters to be lowered to such extent as to allow  
32 the water of the Pacific Ocean to seep or percolate into said  
Santa Ana River Basin and/or does not and will not hereafter in  
any manner deprive the plaintiffs, or any of them, or any other

1 owners of land overlying said Basin, of any waters which they  
2 have heretofore been lawfully taking and using from said Basin,  
3 nor deprive them or any of them of any waters therein to which  
4 they or any of them are in any manner entitled, and does not and  
5 will not hereafter in any manner affect or injure or damage said  
6 plaintiffs, or any of them or any such land owner within said  
7 Basin in any respect whatsoever.

8  
9  
10 I.

11 That the defendant, Laguna Beach County Water District,  
12 is a county water district duly organized and existing under the  
13 provisions of the County Water District Act of the State of Cali-  
14 fornia, approved June 10, 1913, and amendments thereto, and is  
15 engaged in the business of developing, transporting and distribu-  
16 ting water outside of the watershed of the Santa Ana River, for  
17 the domestic uses of its inhabitants and for the irrigation of  
18 lands within its boundaries, and for the municipal uses and pur-  
19 poses of the City of Laguna Beach. That said defendant Water Dis-  
20 trict has the right and is entitled to pump, take, divert, trans-  
21 port and/or carry away from the surplus underground waters lying  
22 being and percolating in and through the coastal area or region  
23 in said Santa Ana River Basin above described, at such time or  
24 times and at such rate or rates as said water district may desire  
25 or see fit, for domestic, irrigation and other beneficial uses,  
26 upon lands lying outside of said basin and outside of the water-  
27 shed of the Santa Ana River and situate on the <sup>South</sup> westerly or coastal  
28 slopes of the San Joaquin Hills and within the exterior boundaries  
29 of said district, as they are now or may hereafter be defined, a  
30 quantity of water amounting to, but not exceeding, 2025 acre feet  
31 during each and every year hereafter. That the pumping, taking,  
32 diverting, transporting and using annually hereafter by said de-  
fendant, Laguna Beach County Water District, of said 2025 acre feet

1 as hereinabove decreed, or any part thereof, will not hereafter  
2 cause the plane or level of said local surplus waters to be  
3 lowered to such extent as to allow the water of the Pacific  
4 Ocean to seep or percolate into said Santa Ana River Basin and/or  
5 does not and will not hereafter in any manner deprive the plain-  
6 tiffs, or any of them, or any other owners of land overlying  
7 said Basin, of any waters which they have heretofore been law-  
8 fully taking and using from said Basin, nor deprive them or any  
9 of them of any waters therein to which they or any of them are  
10 in any manner entitled, and does not and will not hereafter in  
11 any manner affect or injure or damage said plaintiffs, or any  
12 of them, or any such land owners within said Basin in any re-  
13 spect whatsoever.

14  
15  
16 II.

17 That the pumping, taking, diverting, transporting and  
18 using annually hereafter by the defendants The Irvine Company,  
19 a corporation, the City of Newport Beach, and Laguna Beach County  
20 Water District, and each of them, of said surplus waters in said  
21 local area or region in said Basin, to the aggregate amount of  
22 7225 acre feet and no more, as and for the purposes hereinabove  
23 decreed in paragraphs VIII, IX, and X of this decree, does not  
24 and will not hereafter cause the plane or level of said local sur-  
25 plus waters to be lowered to such extent as to allow the water of  
26 the Pacific Ocean to seep or percolate into said Santa Ana River  
27 Basin and/or does not and will not hereafter in any manner de-  
28 prive the plaintiffs, or any of them, or any other owners of land  
29 overlying said Basin, of any waters which they have heretofore  
30 been lawfully taking and using from said Basin, nor deprive them  
31 or any of them of any waters therein to which they or any of them  
32 are in any manner entitled, and does not and will not hereafter in  
any manner affect or injure or damage said plaintiffs or any of

1 them or any such land owner within said Basin in any respect what-  
2 soever.

3 XII.

4 That defendant, The Irvine Company, a corporation, is  
5 entitled to pump, take and extract from said common water bearing  
6 strata and continuous body of underground percolating waters an  
7 amount of water reasonably necessary for domestic, irrigation and  
8 other beneficial uses upon all of its said lands lying within the  
9 boundaries of said Santa Ana River Basin.

10 That defendant, City of Newport Beach, is entitled to  
11 pump, take and extract from said common water bearing strata and  
12 continuous body of underground percolating waters an amount of  
13 water reasonably necessary for domestic and municipal uses within  
14 that portion of said City overlying said Santa Ana River Basin.

15 XIII.

16 That defendant Fairview Farms Water Company is a mutual  
17 water company organized under the laws of the State of California,  
18 and is engaged in supplying water from the common water-bearing  
19 strata and continuous body of percolating waters in said Basin to  
20 its stockholders for use by said stockholders for domestic and ir-  
21 rrigation purposes on lands owned by them in a certain area or dis-  
22 trict approximately 1142 acres in extent lying entirely within said  
23 Basin, except thirty-one acres thereof immediately contiguous there-  
24 to, which said Thirty-one acres are more particularly described as

25 Lots 1, 2, 3, 4, 5, 6, 7 and 8 of Tract No. 158, as shown  
26 on a Map recorded in Book 11, at Page 47 of Maps, records  
27 of Orange County, California. Said tract No. 158 being a  
28 resubdivision of Tract No. 89 as recorded in Miscellaneous  
29 Maps Book 10, Page 13, Records of Orange County, California,  
30 after abandonment of streets and alleys as recorded in  
31 Minute Book 15, Page 370 of the Board of Supervisors of  
32 Orange County, California.

That for more than five (5) years last past, to-wit, for a  
period of approximately twenty (20) years last past, said de-  
fendant, Fairview Farms Water Company, has diverted, transported  
and carried away from said Basin to and for beneficial use upon  
said thirty-one acres of land, a quantity of water amounting to

1 sixty (60) acre feet each year, and said defendant Fairview  
2 Farm Water Company, a corporation, has the right and is en-  
3 titled to pump, take, divert, and/or carry away from  
4 the underground waters lying, being and percolating in and  
5 through said Basin, for domestic and irrigation use upon said  
6 thirty-one (31) acres of land above mentioned, a quantity of  
7 water amounting to but not exceeding sixty (60) acre feet of  
8 water during each year; and that said defendant, Fairview Farm  
9 Water Company is entitled to pump and take from said common water  
10 bearing strata and continuous body of underground percolating  
11 waters, an amount of water reasonably necessary for beneficial  
12 uses upon said area or district approximating 1111 acres in ex-  
13 tent, lying entirely within said Basin.

14  
15  
16 XIX.

17 That defendant Newport Mesa Irrigation District is a  
18 corporation organized under the California Irrigation District  
19 Act approved March 31, 1897, and acts amendatory thereof, and is  
20 engaged in supplying the inhabitants within the present boundar-  
21 ies of said District with water pumped and extracted from the  
22 common water-bearing strata and continuous body of underground  
23 percolating waters in said Basin for domestic and other beneficial  
24 purposes; that the lands within the present boundaries of said  
25 District aggregate 694 acres and entirely overlie said Basin and  
26 the common water-bearing strata and continuous body of under-  
27 ground percolating waters therein; that said defendant Newport  
28 Mesa Irrigation District is entitled to pump and take from said  
29 common water-bearing strata and continuous body of underground  
30 percolating waters an amount of water reasonably necessary for  
31 beneficial uses upon said 694 acres of land.  
32

IV.

That the subject matter and all the questions involved in this action are of common and general interest to the many owners of land and the inhabitants occupying lands within said Santa Ana River Basin whose lands, by reason of their situation in overlying said common water-bearing strata and continuous body of percolating waters in said basin, are similarly situated to the lands in said Basin owned by the parties to this action; that said land owners and inhabitants are too numerous, and it is impracticable, to bring them all before this court in this action, and that by reason thereof this suit has been instituted, maintained and prosecuted by the parties hereto on behalf of themselves and of all other of said persons similarly situated within said Santa Ana River Basin for said common object and purpose; that this decree shall inure to the benefit of and shall be binding upon each and all of the parties to this action, and each and every owner of land similarly situated within said Santa Ana River Basin.

XVI.

That each of the defendants, The Irvine Company, City of Newport Beach and Laguna Beach County Water District, shall install, and thereafter at all times maintain, a standard meter or measuring device at a point on its pipeline maintained and used for the transportation of water from said surplus percolating waters in said basin to which each of said defendants is adjudged to be entitled in this decree for the purpose of measuring all of said water taken by each of said defendants for use outside of said basin. Each of said defendants shall keep a daily record of all water taken or diverted by it and carried through its distributing system to points outside of said basin, and shall allow a representative of the plaintiffs herein, to be hereafter designated by said plaintiffs, to examine such record from time to time and,

1 whenever desired, to make copies therefrom, and shall likewise  
2 allow said representative of said plaintiffs from time to time to  
3 enter upon its premises and examine all the means and instrumen-  
4 talities used by it for making such records, and to verify the  
5 accuracy of the same by said representative making his own measure-  
6 ment of the water so taken and carried into the distributing sys-  
7 tem of the defendant whose records are being so examined or veri-  
8 fied.

9  
10 **IVII.**

11 That each of the parties to this action shall bear  
12 his, her or its own costs.

13 DONE in open court this 13<sup>th</sup> day of June, 1933.

14  
15  
16 S/ O. K. Luntz  
17 Judge of the Superior Court

18  
19  
20 Filed June 15 - 1933

21  
22 Entered June 1933

## **Appendix F**

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# **Water Use Efficiency & Water Supply Shortage Ordinance**

## ORDINANCE NO. 100

### AN ORDINANCE OF THE BOARD OF DIRECTORS OF LAGUNA BEACH COUNTY WATER DISTRICT ESTABLISHING A WATER USE EFFICIENCY & WATER SUPPLY SHORTAGE PROGRAM FOR USERS OF POTABLE WATER PROVIDED BY THE DISTRICT

---

Be it ordained by the Board of Directors of the Laguna Beach County Water District as follows:

#### Section I. Title

Laguna Beach County Water District Water Use Efficiency & Water Supply Shortage Ordinance (“Ordinance”)

#### Section II. Findings

1. A reliable minimum supply of potable water is essential to the public health, safety and welfare of the people and economy of Southern California.
2. Southern California is a semi-arid region, largely dependent on imported water supplies from Northern California and the Colorado River. Population growth, drought, climate change, environmental concerns, government policy changes, restrictions on pumping and other factors in our region, in other parts of the State and in the western U.S. make Southern California highly-susceptible to water supply reliability issues.
3. Careful water management requires active water use efficiency measures not only in times of drought but at all times. It is essential to ensure a reliable minimum supply of water to meet current and future water supply needs.
4. California Constitution Article X, Section 2 declares for the general welfare:
  - a. Water resources be put to beneficial use
  - b. Prevention of water waste and unreasonable water use or methods of water use
  - c. Full exercise of water use efficiency with a view to reasonable and beneficial water use
5. California Water Code Section 375 authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce potable water consumption and conserve supplies.
6. California Water Code Section 31027 sets forth the public notification, public meeting and public hearing requirements for water providers proposing the establishment of a water conservation program, ordinance or resolution.

7. California Water Code Sections 350, et. seq., sets forth the determination and notification procedures for water suppliers seeking to declare a water shortage or a water emergency.
8. California Water Code Section 356 allows for the adoption of regulations and restrictions that include discontinuance of service as an enforcement option where a water shortage emergency condition has been declared.
9. California Water Code Section 377 authorizes water suppliers to enforce a comprehensive water conservation program to reduce potable water consumption through establishment of non-compliance charges and other penalties, subject to advance notification to water users.
10. California Water Code Section 370, et. seq., authorizes water suppliers to adopt water allocation programs for water users and allocation-based water conservation pricing.
11. The adoption and enforcement of a Water Use Efficiency & Water Supply Shortage Ordinance is necessary to manage the District's potable water supply short- and long-term and to minimize and/or avoid the effects of drought and water shortage within the District. Such a program is essential to ensure a reliable and sustainable minimum supply of water for public health, safety and welfare.

### **Section III. Declaration of Purpose and Intent**

1. To minimize or avoid the effect and hardship of potential shortages of potable water to the greatest extent possible, this Ordinance establishes a Water Use Efficiency & Water Supply Shortage Program designed to:
  - a. Reduce potable water consumption (demand) through efficiency
  - b. Enable effective potable water supply planning
  - c. Assure reasonable and beneficial use of potable water
  - d. Prevent waste of potable water and maximize efficient use in the District
2. The Ordinance establishes:
  - a. Permanent mandatory water use standards designed to alter behaviors related to potable water-use efficiency during non-shortage conditions.
  - b. Voluntary water use efficiency guidelines, which the District may choose to implement prior to moving into mandatory restrictions when a 5 to 15 percent reduction in consumption is needed from District customers.
  - c. Three mandatory levels of potential response to escalating water supply shortages, which the District may choose to implement during times of water shortage or declared water emergency. The three levels of response consist of increasing water use restrictions as a result of worsening drought conditions, emergencies, and/or decreasing supplies.
  - d. A water use efficiency and supply shortage program that reduces water consumption within the District through efficiency, enables effective water supply planning, assures reasonable and beneficial use of water, and prevents waste of water.

- e. Guidelines for the efficient use of water within the District to avoid and minimize the effect and hardship of water shortage to the greatest extent possible.

## Section IV. Definitions

### 1. General

- a. "The District" means Laguna Beach County Water District.
- b. "The Board" means the Laguna Beach County Water District Board of Directors.
- c. "The Commission" means the Laguna Beach County Water District Commission
- d. "Person" means any person or persons, corporation, public or private entity, governmental agency or institution, or any other user of water provided by the District.
- e. "Potable Water" means water that is suitable for drinking.
- f. "Recycled Water" means the reclamation and reuse of non-potable water and/or wastewater for beneficial use, such as irrigation. Also known as "Reclaimed Water."
- g. "Water Waste" refers to uses of water that are limited or prohibited under the Ordinance because they exceed necessary or intended use and could reasonably be prevented, such as runoff from outdoor watering.
- h. "Base Water Supply" means the District's average annual water purchases from its wholesaler over a given period, e.g. 2004-2006.
- i. "Billing Unit" is equal to 100 cubic feet (1 CCF) of water, which is 748 gallons. Water use is measured in units of 100-cubic-feet and multiplied by applicable water usage rates for billing. Also known as a "unit of water."
- j. "Undue Hardship" is a unique circumstance in which a requirement of the Ordinance would result in a disproportionate impact on a water user or property upon which water is used compared to the impact on water users generally or similar properties or classes of water use.

### 2. Irrigation

- a. "Automatic Shut-Off Hose Nozzle" refers to a water-efficient nozzle for use with residential or commercial hoses that must be pressed to start or stop the flow of water.
- b. "Irrigation Controller" is the part of an automated irrigation system that instructs the valves to open and close to start or stop the flow of water.
  - 1. "Sensor-based irrigation controller" operates based on input from a combination of sensors (rain, solar, soil moisture) installed in or around the landscaped area.
  - 2. "Weather-based irrigation controller" operates automatically based on evapo-transpiration rates (ET) and historic or real-time weather data.
- c. "Irrigation System" refers to a manual or automated watering system consisting of pipes, hoses, spray heads and/or sprinkler devices or valves. Also known as a "Landscape Irrigation System."

- d. “Large Landscape Areas” means a lawn, landscape, or other vegetated area, or combination thereof, equal to more than one (1) acre of irrigable land.
  - e. “Valves” refer to the part of an irrigation system that open and close manually or electronically to start or stop the flow of water.
3. Other
- a. “Pre-Rinse Kitchen Spray Valves” refer to highly water-efficient sprayers that commercial kitchens use to rinse dishes in the sink before washing and for other preliminary cleaning purposes.
  - b. “Single-Pass Cooling System” refers to an air conditioning, refrigeration or other cooling system that removes heat by transferring it to a supply of clean water and dumping the water down the drain – after a single use. This type of cooling system is extremely water-inefficient compared to systems that re-circulate the water.

### **Section V. Application of Ordinance**

1. Ordinance provisions apply to any person or entity using potable water provided by the District. This includes individuals, persons, corporations, public or private entities, governmental agencies or institutions, or any other users of water provided by the District.
2. The provisions of the Ordinance shall not apply to the following:
  - f. Water use necessary to protect public health and safety or for essential government services, such as police, fire, and similar services.
  - b. Water used by commercial nurseries and growers to sustain plants, trees, shrubs, crops or other vegetation intended for commercial sale.
3. This Ordinance is intended solely to further the efficient use of potable 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. Refer to the local jurisdiction or Regional Water Quality Control Board for information on storm water ordinances or management plans.

### **Section VI: Permanent Mandatory Water Use Efficiency Measures**

The following Permanent Mandatory Water Use Efficiency Measures for potable water are in effect at all times, whether or not there is a water supply shortage or emergency.

1. General Restrictions
  - a. Limits on Watering Hours. Watering or irrigating is prohibited any day of the week between 8:00 a.m. and 8:00 p.m. This applies to lawns, landscaping, and all other vegetated areas.

1. The following are exempt from this restriction:

- a. Watering with a hand-held bucket or similar container
  - b. Watering with a hand-held hose equipped with an automatic shut-off hose nozzle
  - c. Adjusting or repairing an irrigation system for very short periods of time.
- b. Water Flow or Runoff. It is prohibited to water lawns, landscaping, and vegetated areas in a manner that causes or allows water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch.
- c. Obligation to Fix Leaks, Breaks or Malfunctions in lines, fixtures or facilities. Loss or escape of water through breaks, leaks or malfunctions in the water user's plumbing, distribution or irrigation system is prohibited for any period of time after such water waste should have reasonably been discovered and corrected. Leaks, breaks, or malfunctions must be corrected in no more than three (3) days of District notification. The District, at its sole discretion, may temporarily shut-off service if unable to contact the account holder on record.
- d. Hosing or Washing Down Hard or Paved Surfaces. It is prohibited to use water to hose or wash down hard or paved surfaces, such as sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys.

1. The following are exempt from this restriction:

- a. Hosing or washing down with a hand-held bucket or similar container
  - b. Hosing or washing down with a hand-held hose equipped with an automatic shut-off hose nozzle
  - c. Hosing or washing down with a low-volume high-pressure cleaning machine equipped to recycle used water
- e. Hosing or Washing Down Vehicles. It is prohibited to use water to hose or wash down a motorized or non-motorized vehicle, including but not limited to automobiles, trucks, vans, buses, motorcycles, boats or trailers.

2. The following are exempt from this restriction:

- a. Hosing or washing down vehicles with a hand-held bucket or similar container
  - b. Hosing or washing down vehicles with a hand-held hose equipped with an automatic shut-off hose nozzle
  - c. Commercial car washing facility that recycles water
  - d. Mobile car washing services equipped to recycle used water
- f. Re-Circulating Decorative Water Fountains and Features. All new decorative water fountains and water features must re-circulate water -- or users must secure a waiver from the District.

- g. Unauthorized Use of Fire Hydrants Prohibited. No person may use water from any fire hydrant for any purpose other than fire suppression or emergency aid without first:
  - 1. Requesting and posting the appropriate fees at the District.
  - 2. Obtaining a hydrant meter to record all water consumption for a specified project. Absent a meter, water theft and meter tampering fees will be applied as appropriate.

## 2. Commercial Kitchen Requirements

- a. Water-Efficient Pre-Rinse Kitchen Spray Valves. All new food preparation establishments, such as restaurants, cafes, and hotels, are prohibited from using non-water efficient kitchen spray valves.
- b. Best-Available Water-Conserving Technology. All water-using equipment in new commercial kitchens must use the best-available, water-conserving technology.
- c. Automatic Shut-Off Hose Nozzles. When hosing or washing kitchen or garbage areas or other areas for sanitary reasons as required by the Health Department, hoses shall be equipped with automatic shut-off hose nozzles.

## 3. Commercial Water Recirculation Requirements

- a. Water Served Only Upon Request. Eating or drinking establishments, including but not limited to restaurants, hotels, cafes, cafeterias, bars, clubs or other public places where food or drinks are sold, served or offered for sale are prohibited from providing drinking water to any person unless expressly requested.
- b. Option Not To Have Towels/Linens Laundered. Hotels, motels and other commercial lodging establishments must provide guests the option of not having their used towels and linens laundered. Lodging establishments must prominently display notice of this option in each room and/or bathroom, using clear and easily understood language.
- c. No Installation of Non-re-circulating Water Systems in Car Wash and Laundry Systems. Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new laundry systems.
- d. No Installation of Single-Pass Cooling Systems. Installation of single-pass cooling systems is prohibited in buildings requesting new water service.

## 4. Construction Site Requirements

- a. Recycled or non-potable water must be used, when available.
- b. No potable water may be used for soil compaction or dust control where there is a reasonably available source of recycled or non-potable water approved by the Department of Public Health and appropriate for such use.
- c. Water hoses shall be equipped with automatic shut-off nozzles, given such devices are available for the size and type of hoses in use.

5. Wasteful Water Use. Upon notice by the District, persons shall cease to cause or permit the indiscriminate use of water not otherwise prohibited above which is wasteful and without reasonable purpose.

**Section VII: Water Supply Shortage Watch (Water Watch)**

*5 – 15 percent shortage in imported water supplied to the District and/or up to 15 percent reduction needed in consumer demand*

The District will declare a Water Supply Shortage Watch when it determines that a reduction in consumer demand is necessary in order to make more efficient use of limited water supplies and appropriately respond to existing water conditions.

The type of event that may prompt the District to declare a Level 1 Water Supply Shortage Watch could include, among other factors, a finding that its wholesale water provider has allocated no more than 85 percent of the District's base water supply.

In addition to:

1. Permanent Water Use Efficiency Measures identified in Section VI remaining in effect,

The District may also implement any or all of the following actions to reduce consumer demand.

2. Public Outreach. The District may expand water use efficiency programs and notify District customers of need to conserve.
3. Extraordinary Voluntary Water Use Efficiency Measures. The District may implement extraordinary voluntary water use efficiency measures upon declaring a Water Watch.
4. Water Allocations/Water Budget: The District may establish or adjust 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 must provide notice of the 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 the water allocation as established by the District, any person that uses water in excess of the allocation will be subject to a penalty, in an amount to be determined by the District, for each billing unit of water in excess of the allocation. The penalty for excess water usage will be cumulative to any other remedy or penalty that may be imposed for violation of this ordinance.

5. Water Supply Shortage Rates: The District may increase water rates, other than Tier 1, by an amount necessary, as determined by the District. The increase in water rates may vary from categories of customers.
6. Other Prohibited Uses. The District may implement other prohibited water uses as deemed necessary, after notice to customers.

**Section VIII: Level 1 - Water Supply Shortage Alert (Water Alert)**

*15 – 30 percent shortage in imported water supplied to the District and/or up to 30 percent reduction needed in consumer demand*

A Level 1 Water Supply Shortage Alert exists when the District determines that an additional reduction in consumer demand is necessary to make more efficient use of limited water supplies and appropriately respond to water conditions.

The type of event that may prompt the District to declare a Level 1 Water Supply Shortage includes, among other factors, a finding that its wholesale water provider allocated no more than 70 percent of the District’s base water supply.

In addition to:

1. Permanent Water Use Efficiency Measures identified in Section VI remaining in effect; and,
2. Voluntary Water Use Efficiency Measures identified in Section VII remaining in effect.
3. Water Allocations/Water Budgets implemented in Section VII remaining in effect.
4. Water Supply Shortage Rates implemented in Section VII remaining in effect.

The District may also implement any or all of the following actions to reduce consumer demand:

5. Additional Mandatory Water Use Efficiency Measures: The District may implement the following additional mandatory water use efficiency measures, which would apply for the duration of the Level 1 Water Supply Shortage Alert:
  - a. Limits on Watering Days. Watering lawns, landscaping and other vegetated areas is limited to no more than three (3) days per week. The District will establish and post a watering schedule.
  - b. Timeframe to Fix Leaks, Breaks or Malfunctions in water users’ pipelines, fixtures or facilities. Loss or escape of water through breaks, leaks or other malfunctions in the water user’s plumbing, distribution or irrigation system must be fixed in no more than forty-eight (48) hours following notification from the District – unless other arrangements are made with the District or the system is shut off while waiting for repairs. The District, at its sole discretion, may temporarily shut-off service if unable to contact the account holder on record.
  - c. Other Prohibited Uses: The District may implement other prohibited water uses as deemed necessary, following notification of customers.

**Section IX. Level 2 - Water Supply Shortage Warning (Water Warning)**

*30 – 50 percent shortage in imported water supplied to the District and/or up to 50 percent reduction needed in consumer demand*

A Level 2 Water Supply Shortage Warning exists when the District determines that a further additional reduction in consumer demand is necessary in order to make more efficient use of limited water supplies and appropriately respond to existing water conditions.

The type of event that may prompt the District to declare a Level 2 Water Supply Shortage Warning could include, among other factors, a finding that its wholesale water provider allocated less than 50 percent of the District's base water supply.

In addition to:

6. Permanent Water Use Efficiency Measures identified in Section VI remaining in effect; and,
7. Voluntary Water Use Efficiency Measures identified in Section VII remaining in effect; and,
8. Level 1 Water Use Efficiency Measures identified in Section VIII remaining in effect.
9. Water Allocations/Water Budgets identified in Section VII remaining in effect.
10. Water Supply Shortage Rates identified in Section VII remaining in effect.

The District may also implement any or all of the following actions to reduce consumer demand:

11. Additional Mandatory Water Use Efficiency Measures: The District may implement the following additional mandatory water use efficiency measures, which would apply for the duration of the Level 2 Water Supply Shortage Warning:
  - a. Limits on Watering Days. Watering lawns, landscaping and other vegetated areas is limited to no more than two (2) days per week. The District will establish and post a watering schedule.
    1. The following are exempt from this restriction (subject to hour restrictions, Section VII.1.a, b):
      - a. Watering with a hand-held bucket or similar container
      - b. Watering with a hand-held hose equipped with a automatic shut-off hose nozzle
      - c. Irrigation systems that exclusively use very-low-flow drip type systems where emitters discharge no more than two (2) gallons of water per hour
      - d. Adjusting or repairing an irrigation system for very short periods of time
      - e. Public works projects and actively-irrigated environmental mitigation projects
      - f. Maintenance of existing landscaping necessary for fire protection and/or soil erosion control



**Section X. Level 3 - Water Supply Shortage Emergency (Water Emergency)**

*30 – 50 percent shortage in imported water supplied to the District and/or more than 50 percent reduction needed in consumer demand*

A Level 3 Water Supply Shortage exists when the District determines that a further additional reduction in consumer demand is necessary in order to make more efficient use of limited water supplies and appropriately respond to existing water conditions.

The type of event that may prompt the District to declare a Level 3 Water Supply Shortage Emergency could include, among other factors, a finding that its wholesale water provider allocated less than 50 percent of the District's base water supply.

In addition to:

1. Permanent Water Use Efficiency Measures identified in Section VI remaining in effect; and,
2. Voluntary Water Use Efficiency Measures identified in Section VII remaining in effect; and,
3. Level 1 Water Use Efficiency Measures identified in Section VIII remaining in effect; and,
4. Level 2 Water Use Efficiency Measures identified in Section IX remaining in effect.
5. Water Allocations/Water Budgets identified in Section VII remaining in effect.
6. Water Supply Shortage Rates identified in Section VII remaining in effect.

The District may also implement any or all of the following actions to reduce consumer demand:

7. Water Use Efficiency Measures. The District may implement the following additional mandatory water use efficiency measures, which would apply for the duration of the Level 3 Water Supply Shortage Emergency:
  - a. All Watering Prohibited. Watering is prohibited on any day at any time for lawns, landscaping and all vegetated areas. The District will post the no-watering restriction.
    1. The following are exempt from this restriction (subject to hour restrictions in Section VII.1.a, b):
      - a. Watering with a hand-held bucket or similar container
      - b. Maintenance of existing landscaping necessary for fire protection and/or soil erosion control
      - c. Maintenance of plant materials identified as rare or essential to the well being of endangered/rare species

8. Discontinuance of Service: Pursuant to Water Code Section 356, the District may discontinue service to customers who willfully violate provisions of this section.
9. Other Prohibited Uses: The District may implement other prohibited water uses as deemed necessary, following notification of customers

#### **Section XI. Declaration & Notification of Water Shortages/Emergencies**

1. Declaration of a Water Watch, Level 1 Water Alert or Level 2 Water Warning: The District may declare a Water Watch, Level 1 Water Alert or Level 2 Water Warning at a regular or special public meeting in accordance with State law.
2. Declaration of Level 3 Water Emergency: The District may declare a Level 3 Water Emergency in accordance with Water Code Sections 350, 351, and 352.
3. Notification of a Level 3 Water Emergency
  - a. Except as otherwise provided by State law, the District must publish a copy of the water emergency resolution in a newspaper used for the publication of official notices within the jurisdiction of the District within ten (10) business days of the date that the emergency is declared.
  - b. Except as otherwise provided by State law, additional mandatory water use efficiency requirements will take effect on the tenth (10) business day after the date that the emergency is declared.
4. Adjustment to Budget-based Water Allocation Program or Change in Tiered Rates
  - a. The District may adjust budget-based water allocations and/or increase water usage rates, other than Tier 1 rates, for any or all classes of water users in accordance with the procedures specified in Water Code Section 374.
    1. The District will provide notice of the change to customers and the date the change will take effect.

#### **Section XII. Hardship Waiver**

1. 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 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.
2. Written Finding: The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship.

- a. Application for a Waiver: Application for a waiver must be on a form prescribed by the District and accompanied by a non-refundable processing fee in an amount set by the District.
- b. Supporting Documentation: photographs, maps, drawings, and other information, including a written statement of the applicant, must accompany the application.
- c. Required Findings for Waiver: Based on the information and supporting documents provided in the application, additional information provided as requested, and water use information for the property as shown by the records of the District, the District's General Manager, in making the waiver determination, will take into consideration the following:
  1. That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other residents and businesses;
  2. 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 residents and businesses generally;
  3. 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;
  4. 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; and
  5. That no person shall be given relief on appeal for hardship unless the customer has installed water saving devices, as determined by the District, and made every reasonable effort to reduce water use.
- d. Approval Authority
  1. The District's General Manager or his designee(s) must act upon any completed Application for a Waiver no later than ten (10) business days after receipt by the District. The General Manager or his designee(s) may approve, conditionally approve, or deny the waiver.
  2. The applicant requesting the waiver must be promptly notified in writing of any action taken. Unless specified otherwise, at the time a waiver is approved, it will apply to the subject property for the duration of the water supply shortage or emergency.
- e. Appeals
  1. A customer may appeal the denial of a waiver to the District's Commission by written request for a hearing within ten (10) business days after notification to deny the waiver. The request shall state the grounds for appeal.

2. At a public meeting, the Commission shall review the appeal and, at its sole discretion, may affirm, reverse or modify the waiver denial. The decision of the Commission is final.

### **Section XIII: Penalties and Violations**

1. Misdemeanor: Pursuant to Water Code Section 377 and 31029, any violation of this chapter may be prosecuted as a misdemeanor punishable by imprisonment in the county jail for not more than thirty (30) days, or by a fine not exceeding six hundred dollars (\$600), or by both.
2. Civil Penalties: Civil penalties for failure to comply with any provisions of the Ordinance are as follows:
  - a. First Instance of Non-Compliance: The District will issue a written warning and deliver a copy of the Ordinance by mail or door hanger.
  - b. Second Instance of Non-Compliance: A second violation within the preceding twelve (12) calendar months is punishable by a fine not to exceed one hundred dollars (\$100).
  - c. Third Instance of Non-Compliance: A third instance of non-compliance with the Ordinance within the preceding twelve (12) calendar months is punishable by a fine not to exceed two hundred and fifty dollars (\$250)
  - d. Fourth and Subsequent Instances of Non-Compliance: A fourth or any subsequent instance of non-compliance with this Ordinance is punishable by a fine not to exceed five hundred dollars (\$500).
    1. Water Flow Restrictor Device. In addition to any fines, the District may install a water flow restrictor device of approximately one gallon per minute capacity for meter services up to one and one-half inch size and comparatively sized restrictors for larger services. If the District installs a water flow restrictor, installation would follow written notice of intent to the customer and would be in place for a minimum of forty-eight (48) hours.
    2. 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, pursuant to Water Code Section 356.
3. Costs for Water Flow Restrictors and Service Disconnection: A person or entity in non-compliance with 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 must be paid to the District before the device is removed. Nonpayment will be subject to the same remedies as nonpayment of basic water rate.
4. Separate Offenses: Each day that a person or entity is non-compliant with the Ordinance is a separate offense.

5. Notice and Hearing.

- a. The District will issue a Notice of Violation by mail or personal delivery at least ten (10) days before taking enforcement action. Such notice must describe the violation and the date by which corrective action must 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 will be final. Upon receipt of a timely appeal, a hearing on the appeal will be scheduled, and the District will mail written notice of the hearing date to the customer at least ten (10) days before the date of the hearing.
- b. Pending receipt of 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.

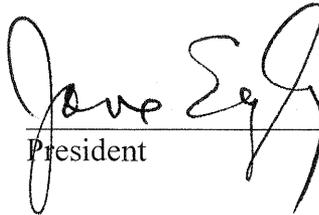
**Section XIV: Severability**

If any section, subsection, sentence, clause or phrase in this Ordinance is for any reason held invalid, the validity of the remainder of the Ordinance will not be affected. The District's Board of Directors 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 thereof is declared invalid.

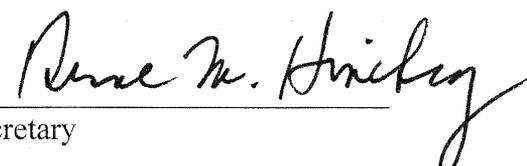
**NOW, THEREFORE, BE IT RESOLVED**, the Board of Directors of Laguna Beach County Water District, does hereby resolve and order as follows:

1. That Ordinance 100: Water Use Efficiency & Water Supply Shortage for Laguna Beach County Water District as submitted be and hereby is approved.

**ADOPTED, SIGNED, AND APPROVED** this 16<sup>th</sup> day of June, 2009.

  
\_\_\_\_\_  
President

ATTEST:

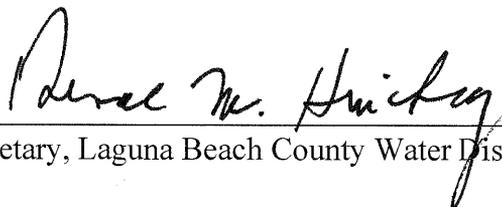
  
\_\_\_\_\_  
Secretary

**CERTIFICATION**

I, Renae M. Hinchey, Secretary of the Laguna Beach County Water District, of Orange County, California, do hereby certify that the foregoing Ordinance No. 100 was duly adopted at a regular meeting of the Board of Directors of said District, held on the 16<sup>th</sup> day of June, 2009, by the following vote of Members of the Board:

AYES: Directors: - Egly, Boyd, Iseman, Pearson, Rollinger  
NOES: Directors: - None  
ABSENT: Directors: - None

And I further certify that Jane Egly as President, and Renae M. Hinchey, as Secretary, signed and approved said Ordinance on the 16<sup>th</sup> day of June, 2009.

  
Secretary, Laguna Beach County Water District

(District Seal)

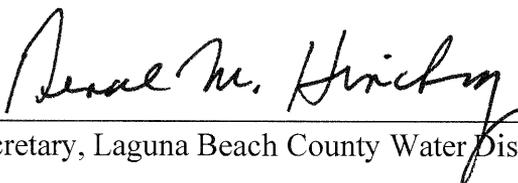
STATE OF CALIFORNIA)

) ss.

COUNTY OF ORANGE )

I, Renae M. Hinchey, Secretary of the Laguna Beach County Water District of Orange County, California, do hereby certify that the foregoing is a full, true and clear copy of Ordinance No. 100 passed and adopted by the Board of Directors of said District at a regular meeting hereof held on June 16, 2009. In witness whereof, I have hereunto set by hand and affixed the official seal of said district this 16<sup>th</sup> day of June, 2009.

(District Seal)

  
Secretary, Laguna Beach County Water District