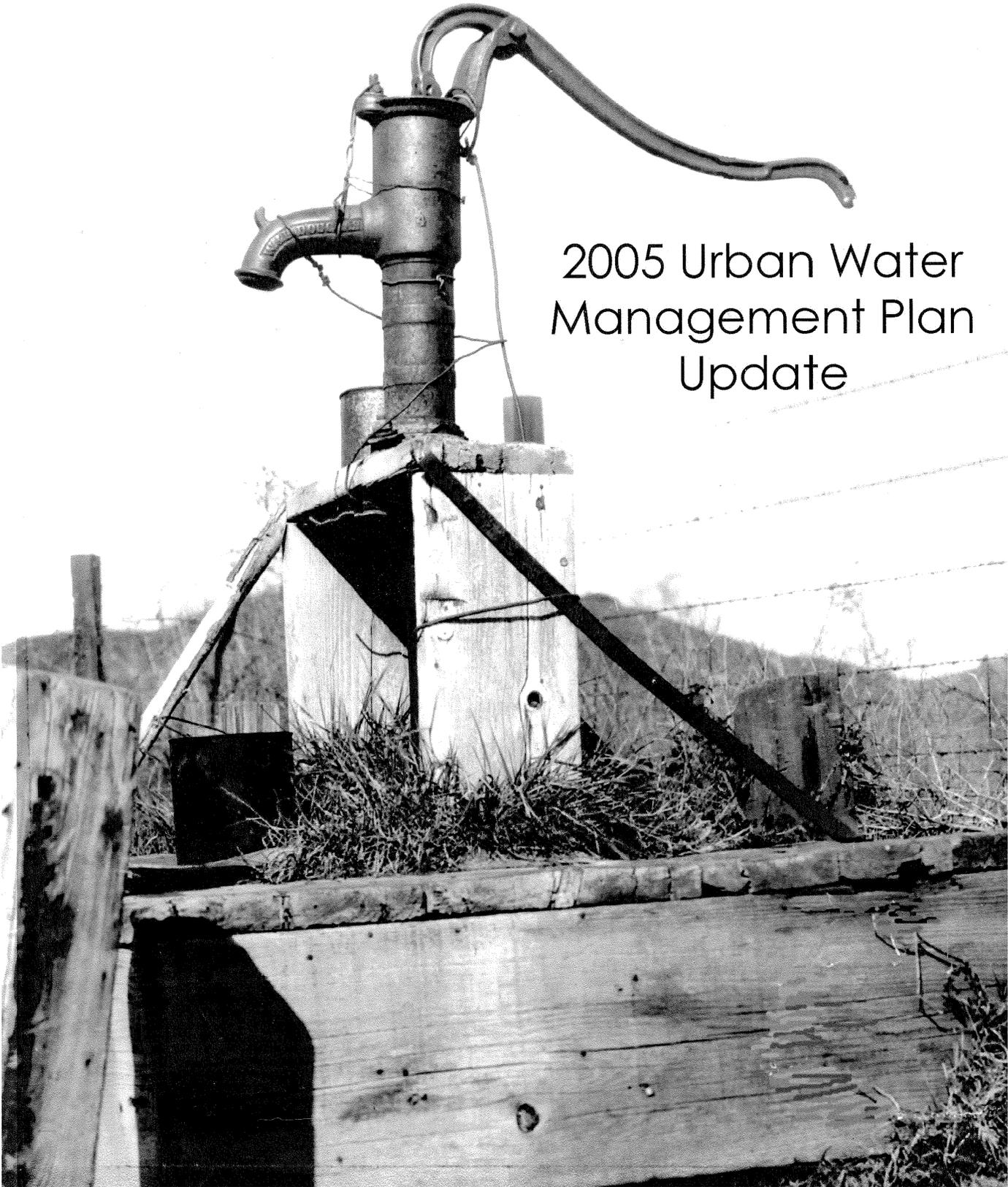


LAGUNA BEACH COUNTY WATER DISTRICT

2005 Urban Water
Management Plan
Update



December 2005

LAGUNA BEACH COUNTY WATER DISTRICT
Urban Water Management Plan Update 2005

Orange County, California

December 2005

**Laguna Beach County Water District
Orange County, California**

Board of Directors

Elizabeth Pearson-Schneider	President
Steve Dicterow	Vice President
Jane Egly	Director
Toni Iseman	Director
Cheryl Kinsman	Director

Commission

Bruce Scherer	Chair
Susan Trager	Vice Chair
Ted Caldwell	Commissioner
Mark Lewis	Commissioner
Debbie Neev	Commissioner

Counsel

Paula E. Meyer, Esq.	District Counsel
----------------------	------------------

District Management

Rena M. Hinchey	General Manager
James R. Nestor	Engineering/Operations
Robert L. Westphal	Auditor/Treasurer
Christopher J. Regan	Administration/Public Affairs

**Laguna Beach County Water District
2005 Urban Water Management Plan**

Contact Sheet

Report contact person:	Christopher J. Regan Manager of Admin. & Public Affairs Phone: 949.494.1041 E-mail: cregan@lbcwd.org
Date of Public Hearing:	December 27, 2005
Plan Adoption Date:	January 16, 2006
Resolution Number:	691
Plan submitted to Department of Water Resources:	1/18/2006
The water supplier is a:	Special District – retailer
Utility services provided by the water supplier include:	Water
Is the agency a Bureau of Reclamation Contractor?	No
Is the agency a State Water Project Contractor?	No

Table of Contents

SECTION	SECTION TITLE	PAGE
Section 1:	Agency Coordination	
	a. Agency Coordination	1-1
Section 2:	Contents of Urban Water Management Plan	
	a. Service Area Information with 20-year Projections	2-1
	b. Water Sources	2-6
	c. Water Sources – Groundwater	2-8
	d. Reliability of Supply	2-12
	e. Transfer and Exchange Opportunities	2-16
	f. Water Use by Customer Type – Past, Current and Future	2-17
	g. Demand Management Measures	2-19
	h. Planned Water Supply Projects and Programs	2-29
	i. Development of Desalinated Water	2-32
	j. Current or Projected Supply Includes Wholesale Water	2-34
Section 3:	Determination of Demand Management Implementation	
	a. Determination of DMM Implementation	3-1
Section 4:	Water Shortage Contingency Plan	
	a. Water Supply Emergency Response Plan - Stages of Action	4-1
	b. Section I: Declaration of Policy, Purpose, and Intent	4-2
	c. Section II: Types of Emergency	4-2
	d. Section III: Authorization	4-2
	e. Section IV: Application	4-3
	f. Section V: Definitions	4-3
	g. Section VI: Criteria for Initiation and Termination of Response Stages	4-4
	h. Section VII: Water Supply Emergency Response Stages	4-4
	i. Analysis of Revenue Impacts of Reduced Sales During Shortages	4-10
	j. Draft Ordinance and Use Monitoring Procedure	4-11
Section 5:	Recycled Water Plan	
	a. Regional Wastewater Treatment Plant	5-1
	b. Potential and Projected Use, Optimization Plan with Incentives	5-2
Section 6:	Water Quality Impacts on Reliability	
	a. Water Quality Impacts on Reliability	6-1
Section 7:	Water Service Reliability	
	a. Water Service Reliability	7-1
	b. Projected Normal Water Year Supply and Demand	7-1
	b. Projected Single-Dry-Year Supply and Demand Comparison	7-2
	c. Projected Multiple-Dry-Year Supply and Demand Comparison	7-3
Section 8:	Adoption and Implementation of UWMP	
	a. Resolution Adopting 2005 Urban Water Management Plan Update	8-1
Section 9:	Appendices	
	a. California Urban Water Management Planning Act	9-1
	b. Draft Resolution Establishing the Criteria to Declare a Water Supply Emergency	9-9
	c. 1933 Judgment	9-10

Table of Contents

LIST OF TABLES	PAGE
Section 1: Agency Coordination	
Table 1: Coordination with Appropriate Agencies	1-1
Section 2: Contents of Urban Water Management Plan	
Table 2: Population – Current and Projected	2-2
Table 3: Climate	2-4
Table 4: Current and Planned Water Supplies – AF/Y	2-6
Table 5: Groundwater Pumping Rights – AF/Y	2-10
Table 6: Amount of Groundwater Pumped – AF/Y	2-11
Table 7: Amount of Groundwater Projected to be Pumped AF/Y	2-11
Table 8: Supply Reliability AF/Y	2-14
Table 9: Basis of Water Year Data	2-15
Table 10: Describe the Factors Resulting in Inconsistency of Supply	2-15
Table 11: Transfer and Exchange Opportunities – AF/Y	2-16
Table 12: Past, Current and Projected Water Deliveries	2-18
Table 13: Sales to Other Agencies AF/Y	2-18
Table 14: Additional Water Uses and Losses AF/Y	2-18
Table 15: Total Water Use – AF/Y	2-18
Table 16: Evaluation of Unit Cost of Water that would Result from Non-Implemented DMMs	N/A
Table 17: Future Water Supply Projects	2-30
Table 18: Opportunities for Desalinated Water	2-33
Table 19: Agency Demand Projections Provided to Wholesale Suppliers	2-34
Table 20: Wholesaler Identified and Quantified the Existing and Planned Sources of Water	2-34
Table 21: Wholesale Supply Reliability - % of Normal Supply	2-34
Table 22: Factors Resulting in Inconsistency of Wholesaler's Supply	2-34
Section 4: Water Shortage Contingency Plan	
Table 23: Water Supply Shortage Stages and Conditions, and Triggering Mechanisms	4-1
Table 24: Three-Year Estimated Minimum Water Supply AF/Y	4-1
Table 25: Preparation Actions for a Catastrophe	4-2
Table 26: Mandatory Prohibitions	4-6
Table 27: Consumption Reduction Methods	4-7
Table 28: Penalties and Charges	4-8
Table 29: Proposed Measures to Overcome Impacts	4-13
Table 30: Proposed Measures to Overcome Expenditure Impacts	4-13
Section 5: Recycled Water Plan	
Table 31: Water Use Monitoring Mechanisms	N/A
Table 32: Participating Agencies – Recycled Water	N/A
Table 33: Wastewater Collected and Treated – AF/Y	N/A
Table 34: Disposal of Wastewater (non-recycled) AF/Y	N/A
Table 35a: Recycled Water Uses – Actual AF/Y	N/A
Table 35b: Recycled Water Uses – Potential AF/Y	N/A
Table 36: Projected Future Use of Recycled Water in Service Area – AF/Y	N/A
Table 37: Recycled Water Uses – 2000 Projection compared with 2005 actual – AF/Y	N/A
Table 38: Methods to Encourage Recycled Water Use	N/A
Section 6: Water Quality Impacts on Reliability	
Table 39: Current and Projected Water Supply Changes Due to Water Quality – Percentage	6-5

N/A – Table does not apply to District.

Table of Contents

Section 7: Water Service Reliability

Table 40: Projected Normal Water Year Supply – AF/Y	7-1
Table 41: Projected Normal Water Year Demand – AF/Y	7-2
Table 42: Projected Normal Year Supply and Demand Comparison – AF/Y	7-2
Table 43: Projected Single Dry Year Water Supply – AF/Y	7-2
Table 44: Projected Single Dry Year Water Demand – AF/Y	7-2
Table 45: Projected Single Dry Year Supply and Demand Comparison – AF/Y	7-3
Table 46: Projected Supply During Multiple Dry Year Period Ending in 2010 – AF/Y	7-3
Table 47: Projected Demand Multiple Dry Year Period Ending in 2010 – AF/Y	7-3
Table 48: Projected Supply and Demand Comparison - Multiple Dry Year Ending in 2010 – AF/Y	7-4
Table 49: Projected Supply During Multiple Dry Year Period Ending in 2015 – AF/Y	7-4
Table 50: Projected Demand Multiple Dry Year Period Ending in 2015 – AF/Y	7-4
Table 51: Projected Supply and Demand Comparison - Multiple Dry Year Ending in 2015 – AF/Y	7-4
Table 52: Projected Supply During Multiple Dry Year Ending in 2020 – AF/Y	7-5
Table 53: Projected Demand Multiple Dry Year Period Ending in 2020 – AF/Y	7-5
Table 54: Projected Supply and Demand Comparison - Multiple Dry Year Ending in 2020 – AF/Y	7-5
Table 55: Projected Supply During Multiple Dry Year Ending in 2025 – AF/Y	7-5
Table 56: Projected Demand Multiple Dry Year Period Ending in 2025 – AF/Y	7-6
Table 57: Projected Supply and Demand Comparison - Multiple Dry Year Ending in 2025 – AF/Y	7-6
Table 58: Projected Supply During Multiple Dry Year Period ending in 2030 – AF/Y	7-6
Table 59: Projected Demand Multiple Dry Year Ending in 2030 – AF/Y	7-6
Table 60: Projected Supply & Demand Comparison - Multiple Dry Year Ending in 2030 – AF/Y	7-6

REFERENCES

1. Municipal Water District of Orange County – 2005 Draft Urban Water Management Plan
2. Laguna Beach County Water District 2001 Water Master Plan
3. Laguna Beach County Water District 2000 Urban Water Management Plan
4. South Orange County Water Reliability Study Phase 1: September 2001
5. South Orange County Water Reliability Study Phase 2: June 2004
6. Laguna Beach County Water District Santa Ana River Basin Well Project Draft Environmental Impact Report: October 1999
7. Metropolitan Water District of Southern California Integrated Water Resource Plan 2003 Update
8. Metropolitan Water District of Southern California Infrastructure Reliability and Protection Plan, Distribution System Evaluation Orange County Distribution System
9. Working for a Reliable Water Supply for Orange County Briefing

Water Code Section 10620

- (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).
- (b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.
- (c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.
- (d) (1) An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.
 (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.
- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.
- (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

AGENCY COORDINATION

The Laguna Beach County Water District (District) has actively encouraged community participation in its urban water management planning efforts. In preparation for developing the 2005 Urban Water Management Plan, District staff attended planning meetings conducted by the Department of Water Resources (DWR) and the Municipal Water District of Orange County (MWDOC).

District staff prepared the updated Urban Water Management Plan during the summer and fall of 2005. The Urban Water Management Plan is scheduled for adoption by the District's Board of Directors and will be submitted to the Department of Water Resources, City of Laguna Beach, and County of Orange, within 30 days of adoption.

The District is a member of MWDOC, which is a wholesale supplier of water for the Metropolitan Water District of Southern California (Metropolitan). MWDOC has also prepared an Urban Water Management Plan that includes the District as an active member of the Regional Agency.

TABLE 1: Coordination with Appropriate Agencies							
<i>Check at least one box per row</i>	Participated in UWMP development	Contacted for assistance	Attended public meetings	Received copy of the Draft	Commented on the draft	Sent notice of intention to adopt	Not Involved/No Information
<i>City of Laguna Beach</i>	X	X		X		X	
<i>Orange County Planning Department</i>				X		X	
<i>South Coast Water District</i>				X		X	

Section 1

Agency Coordination

<i>Laguna Beach Public Library</i>				X		X	
<i>Laguna Beach Chamber of Commerce</i>				X		X	
<i>Municipal Water District of Orange County</i>	X	X		X		X	
<i>Metropolitan Water District of Southern California</i>	X	X		X		X	

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

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

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

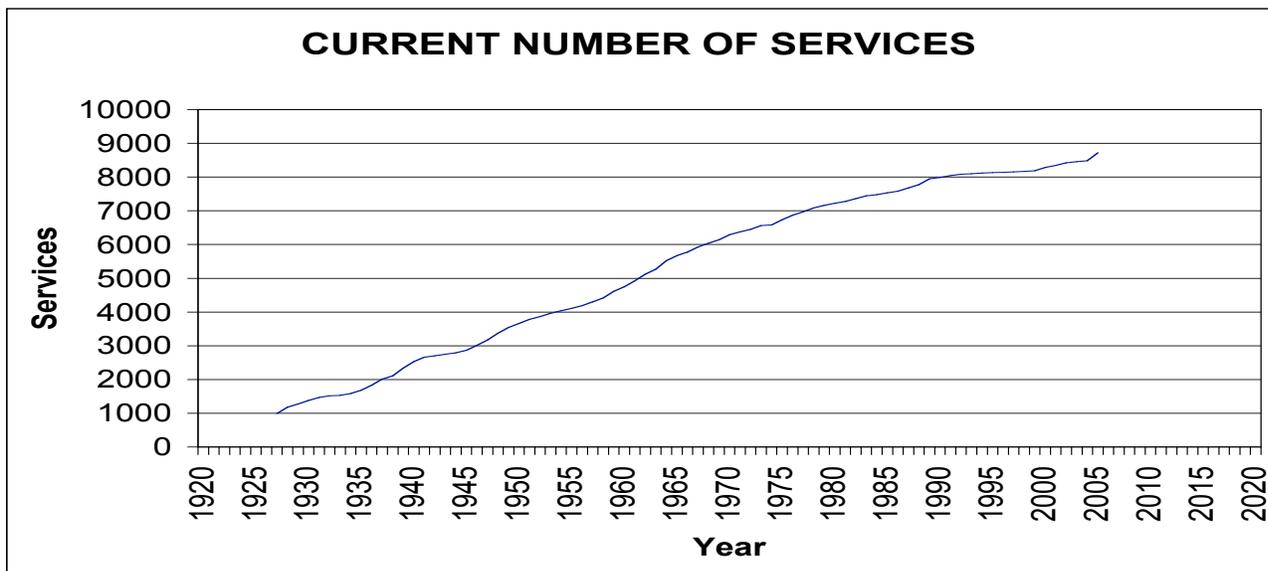
SERVICE AREA INFORMATION WITH 20-YEAR PROJECTIONS

Since 1925, the District has proudly provided reliable, safe, and prudently managed retail water service to our customers.

Laguna Beach County Water District Service Area

The District provides water service to 22,200 people within an 8.5 square mile of southern Orange County. The District's service area encompasses Laguna Canyon in the San Joaquin Hills and includes portions of the City of Laguna Beach adjacent to the Pacific Ocean both north and south of Laguna Canyon. The service area also includes the areas adjacent to the Pacific Ocean along the unincorporated north end of the Laguna Beach Community up to and including the State Park at El Morro Beach.

The District's 8,520 service connections are mostly residential water users. The District sells about 4,600 acre-feet of water annually. This is equal to approximately 1.5 billion gallons delivered on an annual basis.



Growth

The District currently serves approximately 22,200 residents through approximately 8,520 services. The District is a purveyor of domestic water only and imports all of its water from Metropolitan through MWDOC.

Section 2

Contents of Urban Water Management Plan

The total permanent residential population in the District's service area is relatively constant. However, the seasonal populations can double or even triple in the summer season. The terrain in the Laguna Beach service area is hilly with a very limited amount of easily accessible land for development. It is estimated that the growth in the service area will be approximately 1 percent a year for the next 20 years.

The District's service area includes North Laguna Beach, the unincorporated area of Emerald Bay¹, and a portion of Crystal Cove State Park. *Orange County Projections 2000* by Traffic Analysis Zone (TAZ) were utilized to distinguish the District service area population.

TABLE 2: Population - Current and Projected						
	2005	2010	2015	2020	2025	2030/opt
Service Area Population	22,196	22,445	23,007	23,526	23,822	24,122

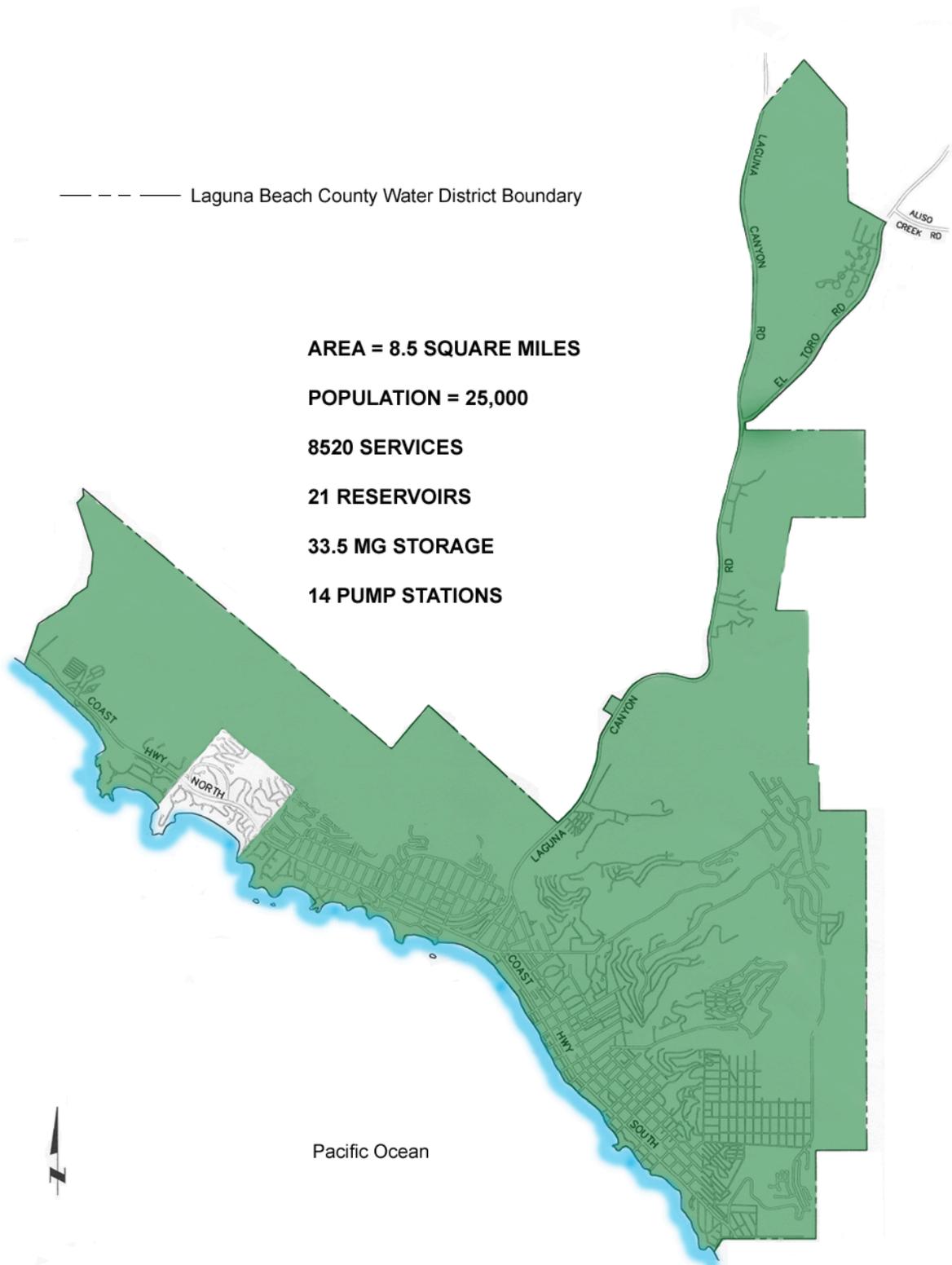
Orange County Projections 2000 by Center for Demographic Research, CS

The City of Laguna Beach is essentially built-out, except for infill development within existing commercial areas or residential neighborhoods. Most of the open space around the City has been acquired by the City or the County for park and open space purposes or has easements for such uses. In the next year, the City will annex the Act V site on Laguna Canyon Road. During the next few years, the City will complete construction of a new Community/Senior Center and will pursue a project to enhance the entrance to the City at the corner of Laguna Canyon Road and Forest Avenue. These projects could result in some additional water use. Water usage is not expected to substantially increase over the next 20 years due to land use decisions. In fact, through the encouragement of drought resistant landscaping, water conservation, and changes in behavior to limit urban runoff and improve the quality of ocean water, it is possible that water use could decline.

¹ The community of Emerald Bay deannexed from the District in 2004. However, water supply is provided through the District and is included in the projections for this report.

Section 2

Contents of Urban Water Management Plan



Section 2

Contents of Urban Water Management Plan

Climate

Climate plays an important role in the physical setting of the District's service area. Temperature, rainfall, and wind are typical of a Mediterranean climate characterized by mild winters, warm summers, moderate rainfall and general year-round sunshine (with the exception of coastal morning fog during the spring and summer months).

Temperatures in Laguna Beach range from 59° to 85° Fahrenheit during the summer and 30° to 80° Fahrenheit in the winter. The average rainfall in Laguna Beach is 13 inches per year. 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. Torrential downpours can occur in one section of the hills, while another section receives only light showers. Thus, rainfall for two different hill sections can vary more than two to three inches per year.

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.

In addition to prevailing sea breezes, Laguna Beach receives seasonal winds generally during the fall and winter months. Referred to as Santa Ana winds, they 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, causing damage to structures and natural vegetation in the canyon areas of the District's service area.

TABLE 3: Climate													
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Annual
Standard Monthly Average ETo	1.87	2.28	3.65	4.78	5.24	5.72	6.00	5.95	4.50	3.42	2.31	1.84	47.56
Average Rainfall (inches)	2.75	2.96	2.58	.84	.25	.13	.04	.12	.35	.47	1.23	1.84	13.56
Average Temperature (Fahrenheit)	55.4	56.0	57.0	59.7	62.5	65.6	68.7	69.3	69.2	65.4	59.6	55.5	62.0

NOTE: Information obtained from CIMIS Station #49 and #174 data.

Section 2

Contents of Urban Water Management Plan

Other Demographic Factors

The District has experienced continuous growth in population since its incorporation in 1925. In that year, the City's population approached 1500 persons, although the total population of the unincorporated area of Laguna Beach was considerably larger than this number. The original city limits consisted of only 690 acres, which generally encompassed the downtown basin and surrounding flat areas. In subsequent years, as the City continued to expand its jurisdictional limits, the population in Laguna Beach similarly increased.

Today the population within the District's service area has increased to approximately 22,200. The area has changed from a rural agricultural and weekend or summer-resort water use area to a permanent, year-round, urbanized water use area. Laguna Beach is also an important vacation and recreation area, having a spectacular coastline, accessible beaches, and forested mountains, all in proximity to several Southern California metropolitan areas.

Current and Projected Trends

The City's growth will likely continue to increase, but at decreasing rates when compared to historical trends. This is due in large part to the diminishing supply of buildable land in the City. The majority of vacant land is constrained by steep terrain, access difficulties, and environmental hazards. This may result in greater attention to land recycling or rehabilitation in the older developed areas of the City, such as the downtown basin and coastal plain.

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a)

WATER SOURCES

The District imports all of its water from outside sources. This imported water is treated at the Diemer Filtration Plant located in Yorba Linda and is delivered to the District through the East Orange County Feeder No. 2, where it is split into two Joint Powers pipelines.

Municipal Water District of Orange County

The Municipal Water District of Orange County (MWDOC) represents the interests of nearly all of Orange County and is Metropolitan's third largest member agency. MWDOC is Orange County's imported water wholesaler supplying 30 water retailers. These entities, comprised of cities and water district's, are referred to as MWDOC member agencies and provide water to approximately 2.3 million customers. Currently, the District receives 100 percent of its imported water supply (4,768 acre-feet) from Metropolitan delivered by MWDOC.

Orange County Water District (lower Santa Ana Basin)

The Orange County Water District (OCWD) manages the Orange County Groundwater 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 water demand.

In 1933, the District obtained an adjudicated right to 2,025 acre-feet of underground water storage in the Orange County Groundwater Basin. (See Section 9: Appendices 9-13) The District is currently exploring options with Orange County Water District for exercising its groundwater rights in the basin to deliver this amount of water by 2010.

Laguna Canyon Groundwater Recovery Project

The District's Laguna Creek Groundwater Recovery Project intends to reclaim and treat local runoff and storm water in Laguna Creek. The treated water would be recharged into the Laguna Canyon Groundwater Basin and extracted for potable use. The District is also considering an option that takes the treated water for direct irrigation use.

TABLE 4: Current and Planned Water Supplies – AF/Y						
Water Supply Sources	2005	2010	2015	2020	2025	2030/opt
Municipal Water District of Orange County	4,768	2,628	2,678	2,728	2,773	2,773
Orange County Water District (lower Santa Ana Basin)	0	2,025	2,025	2,025	2,025	2,025
Laguna Canyon Groundwater Recovery Project	0	200	200	200	200	200
Desalination	0	0	Unknown	Unknown	Unknown	Unknown
TOTAL	4,768	4,853	4,903	4,953	4,998	4,998

Section 2

Contents of Urban Water Management Plan

District Operations

The District maintains 21 water storage reservoirs with a total storage capacity of 33.5 million gallons within the District, providing approximately ten days of water to the community in the event of an emergency. These reservoirs are located within five elevation zones to ensure a reliable distribution to all customers. They are monitored by the District's state-of-the-art telemetry system, allowing District personnel to manage water distribution throughout the system from the District's headquarters.

District staff operates and maintains 36 pumps in 14 pumping stations, with a total approximate connected horsepower of 2,660. The system encompasses 135 miles of distribution pipelines. These pipelines range in diameter from 4 to 16 inches.

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

(b) . . . If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

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

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

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

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

WATER SOURCES – GROUNDWATER

Orange County Water District (lower Santa Ana Basin)

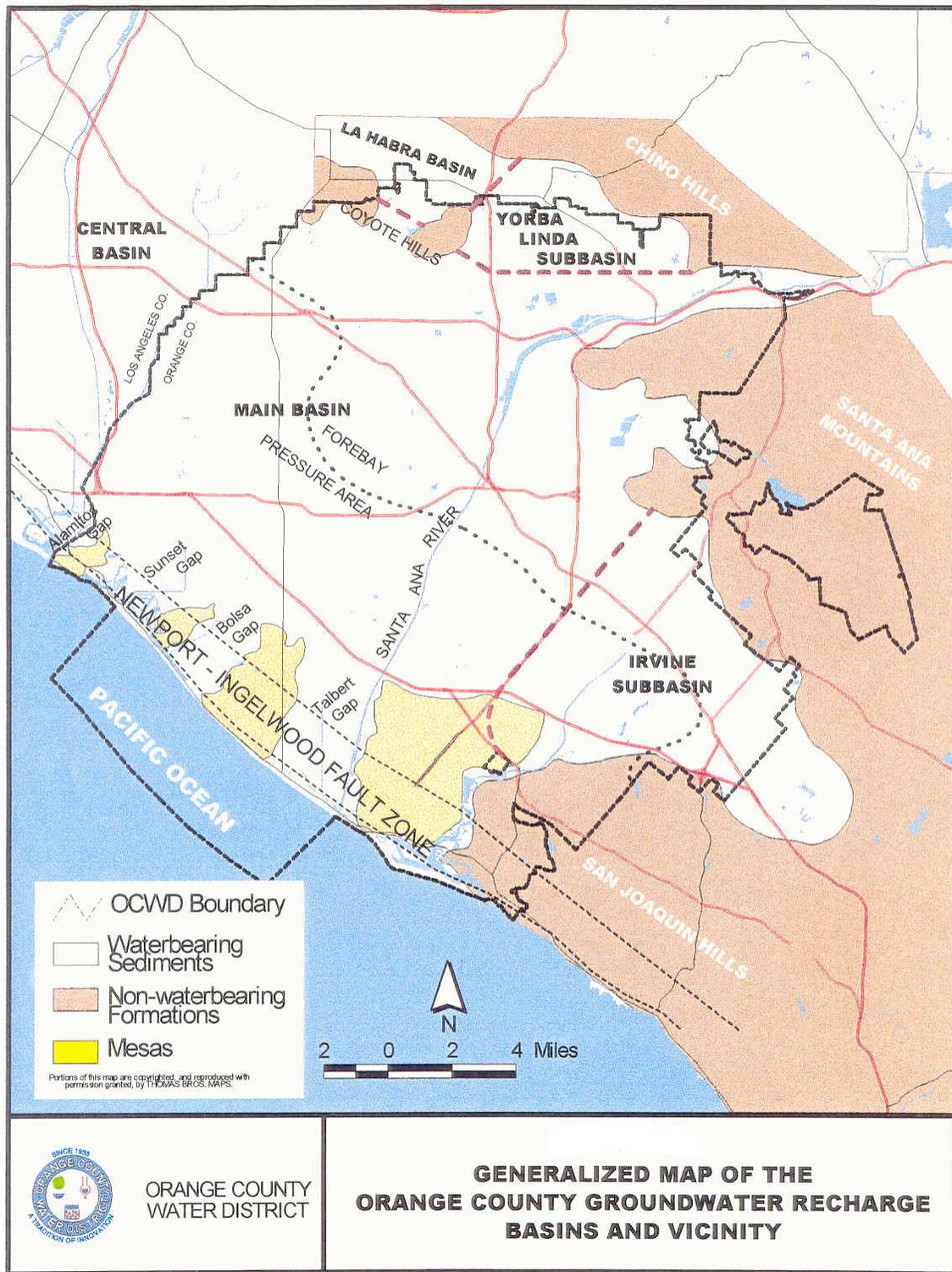
The Orange County Water District manages the Orange County Groundwater Basin. The groundwater basin, which underlies north and central Orange County, provides approximately 66 percent of the water needed in that area; imported water meets the balance of water demand.

The groundwater basin began forming millions of years ago as mountains eroded and ocean sediments filled a deep valley, trapping Santa Ana River water between the layers of accumulated sand and gravel. The deepest aquifers of the groundwater basin still contain pristine water that fell to the earth thousands of years ago. The water pumped today may have entered the basin one year, 100 years or 1,000 years ago, depending on the location and depth of the well. The groundwater basin holds between 10 million and 40 million acre-feet of water, of which 1.25 million to 1.5 million acre-feet is usable.

In 1933, the District obtained an adjudicated right to 2,025 acre-feet of underground water storage in the Basin (See Appendix B). The District is currently exploring options with Orange County Water District for exercising its groundwater rights to deliver this amount of water by 2010.

Section 2

Contents of Urban Water Management Plan



Section 2

Contents of Urban Water Management Plan

Laguna Canyon Groundwater Recovery Project

The District's Laguna Creek Groundwater Recovery Project intends to reclaim and treat local runoff and storm water in Laguna Creek. The treated water would be recharged into the Laguna Canyon Groundwater Basin and extracted for potable use. The District is also considering an option that takes the treated water for direct irrigation use.

It is estimated that the groundwater basin is capable of supplying 200-300 acre-feet of potable water. The potential of increasing the production of the basin exists by catching, treating, and recharging storm water runoff, as well as local nuisance water, into the basin. There is an additional benefit of cleaner beaches through contaminate removal from the storm water and nuisance runoff.

The proposed project will be divided into several components that will accomplish several results.

- a. **Groundwater Extraction** - A number of extraction wells will be drilled throughout the Laguna Canyon Basin that will be joined by a common pipeline. This pipeline will convey the groundwater extracted from the basin to a storage reservoir downstream of the wells. From the reservoir, the water will be sent through a treatment plant. Treatment of the water will occur depending on its final use.
- b. **Storm water and nuisance water catchments** - The surface water that intermittently flows in Laguna Canyon, made up of either storm water and local nuisance runoff, will be caught and stored. Various types of treatment will be applied to the water depending on the final water use that can include reclaimed use, groundwater recharge, and potable use.
- c. **Groundwater Recharge** - Once storm water and nuisance urban runoff have been captured, a system that will treat and transport the water to the upper reaches of the Laguna Creek basin for recharge is proposed. The system will include a booster pump station, transport pipeline, and injection pits or wells.

Geographical Location

The Laguna Creek watershed lies in the San Joaquin Hills of southern Orange County. The drainage area of approximately 5,412 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 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 in general, however, the drainage basin is dry with only sufficient water discharge to reflect losses from groundwater sources and urban runoff.

TABLE 5: Groundwater Pumping Rights – AF/Y	
Basin Name	Pumping Right – AF/Y
Lower Santa Ana Basin	2,025
Total	2,025

Section 2

Contents of Urban Water Management Plan

TABLE 6: Amount of Groundwater pumped – AF/Y					
Basin Name (s)	2000	2001	2002	2003	2004
Lower Santa Ana Basin	0	0	0	0	0
% of Total Water Supply	0	0	0	0	0

TABLE 7: Amount of Groundwater projected to be pumped – AF/Y					
Basin Name(s)	2010	2015	2020	2025	2030/opt
Laguna Canyon Basin	200	200	200	200	200
Lower Santa Ana Basin	2,025	2,025	2,025	2,025	2,025
% of Total Water Supply	45.8%	45.4%	44.9%	44.5%	44.5%

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

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

- (1) An average water year.*
- (2) A single dry water year.*
- (3) Multiple dry water years.*

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.

RELIABILITY OF SUPPLY

Currently, the District is 100 percent dependent on MWDOC for its water supply. 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 Metropolitan annually (in April of each year) of how much water MWDOC anticipates to purchase during the next five years.

In spring of 2005, MWDOC conducted this annual coordination effort by extending the planning horizon specifically to 2030. This was done so that MWDOC could use the obtained information to complete its Plan and to comply with Water Code 10631 (k), where an urban water supplier should provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 25 years.

Metropolitan Water District of Southern California Supply Reliability

In Metropolitan's Draft Regional 2005 Urban Water Management Plan (May 2005), Metropolitan chose to present its supply availability at the region level instead of at the level for each member agency. Because of that decision, MWDOC is not able to quantify the availability of imported supply from Metropolitan specifically for MWDOC. However, in its draft plan, Metropolitan was able to show that it can maintain reliable supplies under the conditions that represent normal, single driest hydrologic year to date, and a series of multiple dry years. Based on supply reliability findings stated by Metropolitan, MWDOC concludes that Metropolitan is capable of supplying imported water to meet demand projected by MWDOC under various hydrologic conditions.

South Orange County Water Reliability Study

Approximately 95 percent of south Orange County's potable water supply is imported from Northern California and the Colorado River. This water is treated locally at the Diemer Filtration Plant in Yorba Linda and delivered via two aging pipelines, the East Orange County Feeder No. 2 and Allen McColloch Pipeline. To ensure continued water reliability for south Orange County, the District, along with 10 other Orange County water agencies, Metropolitan, and the U.S. Bureau of Reclamation joined together to fund the *South Orange County Water Reliability Study (SOCWRS) - Phase 2 System Reliability Plan*. MWDOC headed these efforts.

Section 2

Contents of Urban Water Management Plan

The purpose of this planning effort, conducted from 2003-04, was to:

- Identify risks, including earthquakes, that pose the greatest threat to the regional water treatment and distribution infrastructure;
- Identify ways to bolster source-of-supply and regional distribution systems;
- Building on earlier engineering investigations and studies, develop a list of projects that accomplish the above objectives, and identify appropriate investments;
- Allow for flexibility in phasing. Most notably project operational dates and sizing should be flexible to account for changes in local resource development (LRPs);

The plan builds on a number of prior studies, including: SOCWRS Phase 1, which served as the foundation for this effort; Metropolitan's Central Pool Augmentation Project, currently in project and right-of-way refinement; Santa Margarita Water District's Lined and Covered Reservoir investigations to increase local storage for emergency needs; IRWD's Water Resources Master Plan Update and Planning Area-6 Sub-Area Master Plan; and various Orange County Water District (OCWD) plans and groundwater basin operations studies.

To determine the economic impacts of water shortages, MWDOC retained the services of the Orange County Business Council. According to the Orange County Business Council, the economic impacts could reach \$1.7 billion, depending on the shortage scenario. Even a relatively short 10-day outage of 20% carries a projected impact of over \$60 million. These numbers illustrate the tremendous potential cost to south Orange County from water system outages.

Key planning principles used to guide the formulation of alternatives and the plan included:

- Developing priorities for accommodating Metropolitan planned shutdowns of seven days of average demand and for emergency outages of up to 31 days of summer demand;
- Evaluating compatibility of project components with existing and future supply needs, with preference for projects providing multiple purposes, and seeking economies of scale through regional joint use facilities;
- Making better use of existing, underutilized infrastructure assets;
- Identifying Metropolitan system investments that can provide for flexibility in system operation, which would maintain and improve system capability and reliability for Orange County; and
- Selecting appropriate projects that can be phased and modified to changing conditions.

Projects were identified and an action plan developed. The recommended projects fell into three categories and are the building blocks of the Base and the Contingency Plan. They included: (1) regional distribution system, (2) storage/treatment, and (3) ocean desalination. Implementation of the recommended plan will commence upon reaching agreement with the south Orange County agencies on the priority projects, gaining plan acceptance, and developing a business plan and organizational structure for implementation of the plan.

Section 2

Contents of Urban Water Management Plan

MWDOC's Projections on Reliability of Supply

Reliability of a supply may often be impacted by climatic variation. To analyze the changes of reliability due to climate, this Plan first establishes the hydrologic conditions that define the climatic variations within the MWDOC region – what constitutes the normal water year, the single dry water year, and the multiple dry water years.

TABLE 8: Supply Reliability AF/Y					
2010	Normal	Single	Multiple Dry Water Years		
	Water Year (Average)	Dry Year (1961)	2008 (1959)	2009 (1960)	2010 (1961)
Local Supply	2,225	2,225	200	1,294	2,225
	% of Normal	100.0%	9.0%	58.1%	100.0%
Imported Supply	2,628	2,898	4,930	3,715	2,898
	% of Normal	110.2%	187.6%	141.3%	110.2%
2015	Normal	Single	Multiple Dry Water Years		
	Water Year (Average)	Dry Year (1961)	2008 (1959)	2009 (1960)	2010 (1961)
Local Supply	2,225	2,225	2,225	2,225	2,225
2,225	% of Normal	100.0%	100.0%	100.0%	100.0%
Imported Supply	2,678	2,950	2,985	2,849	2,950
	% of Normal	110.2%	111.5%	106.4%	110.2%
2020	Normal	Single	Multiple Dry Water Years		
	Water Year (Average)	Dry Year (1961)	2008 (1959)	2009 (1960)	2010 (1961)
Local Supply	2,225	2,225	2,225	2,225	2,225
	% of Normal	100.0%	100.0%	100.0%	100.0%
Imported Supply	2,728	3,003	3,039	2,9012	3,003
	% of Normal	110.1%	111.4%	106.3%	110.1%
2025	Normal	Single	Multiple Dry Water Years		
	Water Year (Average)	Dry Year (1961)	2008 (1959)	2009 (1960)	2010 (1961)
Local Supply	2,225	2,225	2,225	2,225	2,225
	% of Normal	100.0%	100.0%	100.0%	100.0%
Imported Supply	2,773	3,050	3,092	2,953	3,050
	% of Normal	110.1%	111.5%	106.5%	110.0%
2030	Normal	Single	Multiple Dry Water Years		
	Water Year (Average)	Dry Year (1961)	2008 (1959)	2009 (1960)	2010 (1961)
Local Supply	2,225	2,225	2,225	2,225	2,225
	% of Normal	100.0%	100.0%	100.0%	100.0%
Imported Supply	2,773	3,050	3,108	2,958	3,050
	% of Normal	110.0%	112.1%	106.7%	110.0%

Section 2

Contents of Urban Water Management Plan

When deciding on which historical hydrology best represents the types of water year, MWDOC considered the combination of the following:

In a situation where the reliability of imported supply is not specifically quantified, MWDOC uses the inferred approach again and assumes Metropolitan will be able to supply the imported demand under all hydrologic conditions. As a result, the water year is defined by the net difference of total retail demand less local supplies. In a dry year, the retail demand usually increases due to dry and hot weather. At the same time, local supply (run-off) usually is low due to less precipitation. The greater the net difference, the more critical it is for MWDOC to depend on imported supply to meet its demand.

TABLE 9: Basis of Water Year Data			
Water Year Type			
Average Water Year	Average of Historical Hydrology from 1922 to 2004		
Single-Dry Water Year	1961		
Multiple-Dry Water Years	1959	1960	1961

Using a water balance computer model developed by MWDOC, all three variables – retail demand, local supplies, and imported supplies – were simulated using 83 historical hydrologies from 1922 to 2004. The average of the 83 simulated trials was used to represent a normal condition (normal water year). Of the 83 years, the hydrologic condition of 1961 yields the highest demand for imported supply, and is therefore used to define a single dry year in the MWDOC service area. Similarly, the historical sequence from 1959 to 1961 yields the highest demand in a three-year sequence for imported supply and is used to define a multiple-dry year in the MWDOC service area.

TABLE 10: Describe the Factors Resulting in Inconsistency of Supply				
Name of supply	Legal	Environmental	Water Quality	Climatic
Metropolitan Water District of Southern California				X
Lower Santa Ana Basin				X
Surface Diversions				X

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

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

TRANSFER AND EXCHANGE OPPORTUNITIES

Laguna Beach County Water 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 11: Transfer and Exchange Opportunities – AF/Y			
Transfer Agency	Transfer or Exchange	Short-term Proposed Quantities	Long term Propose Quantities
Moulton Niguel Water District (6")	Transfer	1 c.f.s	None
Irvine Ranch Water District (18")	Transfer	5 c.f.s.	None
South Coast Water District (6")	Transfer	1 c.f.s.	None
El Toro Water District (6")	Transfer	1 c.f.s.	None

Since the District is a joint partner with several other agencies in major transmission facilities, opportunities for transfer exist using the transmission mains. In fact, over the past year, the jointly owned Coast Supply Line (CSL), which supplies the District, the City of Newport Beach, and Irvine Ranch Water, was used to deliver approximately 8 c.f.s. of water to the District and South Coast Water District from the City of Newport Beach during a 7-day shutdown of the Diemer Filtration Plant in Yorba Linda. The Diemer Filtration Plant serves a major portion of Orange County. Similar opportunities exist using the Aufdenkamp Transmission Main (ATM) for transfers between Irvine Ranch Water District, Santa Margarita Water District, South Coast Water District, and the District. MWDOC is currently spearheading the South Orange County Water Reliability Study, which is reviewing the potential for emergency exchanges between these agencies.

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

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

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(2) Agricultural.

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

WATER USE BY CUSTOMER TYPE – PAST, CURRENT, AND FUTURE

The Laguna Beach County Water District is comprised of 8,520 customer service accounts, which are primarily composed of single-family residential properties. The remainder of the District's service accounts is comprised of multiple unit properties, commercial and industrial properties, and irrigation. All of the District's service accounts are metered.

Single-family Accounts – Defined as any free standing dwelling on a single lot that has no additional dwelling units, which are either attached, detached, or garage conversions.

Multiple Family Accounts – Any single-family residences with an attached/detached additional dwelling unit(s), including garage conversions and additional free standing units, as well as any conforming and/or non-conforming duplexes, triplexes, or apartment buildings (R3) that lack all or any commercial or industrial activity on site.

Commercial Accounts – Any business venture or commercial activity of either a profit or non-profit nature that provides either a product or service to its patrons and lacks occupancy or any permanent or temporary residential usage onsite.

Dual Usage Accounts – A property that shares both a residential dwelling, as well as a commercial or industrial activity, where the residential occupants share usage of water with the commercial and/or industrial activity on one customer service account.

Institutional/Government Accounts – Includes City of Laguna Beach service accounts, fire system service accounts, as well as service accounts needed to operate District pump stations.

Irrigation/Tennis Court Accounts – All irrigation and tennis court service accounts.

Hotel/Motel Account – A commercial property of multiple units, where occupancy is typically less than 30 days, and does not have tenants that utilize the property as their permanent residence, and that all commercial activity that takes place on the property is either owned/operated by the hotel or motel or subleased, and any/all related services provided are geared toward the temporary occupants or seasonal tourist industry.

Section 2

Contents of Urban Water Management Plan

TABLE 12: Past, Current and Projected Water Deliveries										
Year	Water Use Sectors	Single family	Multi-family	Com-mercial	Dual Usage	Instit/ Gov	Irrigate /Tennis	Hotel/ Motel	Total	
2000	metered	# of accounts	6,413	1,112	545		58	100	8,228	
		AF/Y	2,821	689	746		56	201	4,513	
2005	metered	# of accounts	6,601	1,144	432	138	60	103	38	8,469
		AF/Y	2,678	624	608	30	54	191	100	4,285
2010	metered	# of accounts	6,617	1,147	334	140	60	103	39	8,540
		AF/Y	2,779	617	551	30	54	191	100	4,322
2015	metered	# of accounts	6,633	1150	336	142	60	103	40	8,564
		AF/Y	2,786	656	554	30	54	191	100	4,371
2020	metered	# of accounts	6,649	1153	338	144	60	103	41	8,588
		AF/Y	2,793	692	557	34	54	191	100	4,421
2025	metered	# of accounts	6,665	1156	340	146	60	103	42	8,612
		AF/Y	2,799	694	560	67	54	191	100	4,465
2030 /opt	metered	# of accounts	6,681	1159	342	148	60	103	43	8,636
		AF/Y	2,806	696	563	54	54	191	100	4,464

TABLE 13: Sales to Other Agencies – AF/Y							
Water Distributed	2000	2005	2010	2015	2020	2025	2030/opt
Emerald Bay Service District	0	313	313	313	313	313	313
Total	0	313	313	313	313	313	313

TABLE 14: Additional Water Uses and Losses – AF/Y							
Water Use	2000	2005	2010	2015	2020	2025	2030/opt
Unaccounted-for system losses	298	238	218	219	219	220	221
Total	298	238	218	219	219	220	221

TABLE 15: Total Water Use – AF/Y							
Water Use	2000	2005	2010	2015	2020	2025	2030/opt
Sum of Tables 12, 13, 14	4,811	4,836	4,853	4,903	4,953	4,998	4,998

Section 2

Contents of Urban Water Management Plan

Water Code Section 10631

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

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

- (A) Water survey programs for single-family residential and multifamily residential customers.*
- (B) Residential plumbing retrofit.*
- (C) System water audits, leak detection, and repair.*
- (D) Metering with commodity rates for all new connections and retrofit of existing connections.*
- (E) Large landscape conservation programs and incentives.*
- (F) High-efficiency washing machine rebate programs.*
- (G) Public information programs.*
- (H) School education programs.*
- (I) Conservation programs for commercial, industrial, and institutional accounts.*
- (J) Wholesale agency programs.*
- (K) Conservation pricing.*
- (L) Water conservation coordinator.*
- (M) Water waste prohibition.*
- (N) Residential ultra-low-flush toilet replacement programs.*

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

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

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

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

- (1) Take into account economic and non-economic factors, including environmental, social, health, customer impact, and technological factors.*
- (2) Include a cost-benefit analysis, identifying total benefits and total costs.*
- (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost*
- (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.*

WATER DEMAND MANAGEMENT MEASURES

The District is committed to promoting water conservation efforts and appropriate water efficiency practices as a means to protect the areas' natural resources, to stretch existing water supplies, and to maximize sustainability in meeting future water needs for District customers. Conservation has become a major part of the District's current and future programs to reduce demand and increase water supply reliability.

The District's water conservation programs, active and planned, include all of the demand management measures urban water agencies are required to describe and evaluate under section

Section 2

Contents of Urban Water Management Plan

10631(f) of the Urban Water Management Planning Act. The text below describes each measure listed in order of appearance in the Act.

Water Demand Management Measures					
BMP #	EFFICIENCY MEASURE	Current LBCWD program	Past	Planned	Wholesaler Program (MWDOC/Metropolitan)
1	Residential Water Surveys	No	No	Yes	Yes
2	Residential Plumbing Retrofits	No	Yes	Yes	Yes
3	System Water Audits, Leak Detection and Repairs	Yes	Yes	Yes	No
4	Metering with Commodity Rates	Yes	Yes	Yes	No
5	Large Landscape Conservation Programs	No	No	No	No
6	High-Efficiency Washing Machine Rebates	Yes	No	No	Yes
7	Public Information Programs	Yes	Yes	Yes	Yes
8	School Education Programs	Yes	Yes	Yes	Yes
9	Commercial, Industrial and Institutional Programs	No	No	No	Yes
10	Wholesale Agency Assistance	N/A	N/A	N/A	Yes
11	Conservation Pricing	Yes	Yes	N/A	No
12	Conservation Coordinator	Yes	Yes	Yes	No
13	Water Waste Prohibition	No	No	No	No
14	Residential ULFT Replacement Programs	Yes	Yes	No	Yes

(1) Water survey programs for single-family residential and multi-family residential customers.

The District conducts residential surveys on an informal basis by customer request following a high water bill complaint or meter reading that indicated higher than normal usage.

The District plans to fund a residential survey pilot program during the 2006/07 Fiscal year. If deemed cost-effective, the program would be expanded to meet the criteria of this Best Management Practice (BMP). Surveyor training will be available through Municipal Water District of Orange County (MWDOC) in FY 2005-06. Customer service and/or water conservation personnel will perform the surveys, which will be by customer request, in response to high water-use complaints, as well as advertised to the top 10 percent of water users.

Elements being considered for the survey program include: showerhead and faucet retrofits, toilet and meter leak checks, rebate information for ULFT and high-efficiency toilets and washers, landscape irrigation system evaluation and schedule, and literature on indoor and outdoor water conservation.

(2) Residential plumbing retrofit.

Since 1991, the District, Metropolitan and MWDOC have distributed low-flow showerheads alone (2.5 gallons-per-minute or less) or as part of retrofit kits (including showerheads, toilet dams, toilet leak

Section 2

Contents of Urban Water Management Plan

detector tablets, and supporting materials) to District customers during Water Awareness Month, through mass distributions at other times of year or paired with ULFT distributions. Showerhead distribution programs ended in 1998.

MWDOC, Metropolitan, and LBCWD Showerhead distribution results to date:									
Fiscal Year	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	Total
Showerheads distributed	1156*	0	29	129	101	88	64	36	1603
Actual Water Savings AF/Y	4	7	7	7	7	7	7	7	53 (1998)

*as part of a retrofit kit distribution program

The MWDOC UWMP 2005 update states the following about plumbing fixture saturation:

Using the 2001 *Orange County Saturation Study* as a benchmark, saturation of low-flow showerheads was measured at 67% and 60% in single- and multi- family housing stock respectively. Today, low-flow showerhead saturation is estimated at nearly 100% and 94% saturation in single- and multi-family homes respectively. As a result, water agencies throughout Orange County have achieved the 75% saturation requirement for this BMP.

As a water agency located within Orange County, the District can now be considered to have achieved the 75% saturation requirement for this BMP.

Residential plumbing retrofits may be offered for installation through a home survey program that is currently in the planning stages.

(3) System water audits, leak detection, and repair.

The District implements a comprehensive maintenance program for its water distribution system. The program is designed to optimize the maintenance schedules of all equipment requiring periodic maintenance, including valves and meters. The preventative maintenance program has produced cost savings that are associated with repairs and prolonged equipment life. The program has provided an increase in system reliability that relates to a more efficient operating system. The District has permanently incorporated this Demand Management Measure into its operations and maintenance procedures. Since the mid 1070's, over 20 miles of old cast iron water mains have been replaced. This is an ongoing program.

Water Audits – District staff perform water audits of the distribution system and facilities on a monthly basis. These audits include an accounting for sales, local uses, construction uses, and District uses including gains and losses in reservoir storage.

Unidentified losses over the past five years average approximately 6.5 percent. However, individual years show that the District often falls well below this figure. All unusual losses are immediately investigated by checking meter readings and looking for leaks. The District continues to closely audit its delivery and distribution system.

Section 2

Contents of Urban Water Management Plan

Valve Exercising – Valve maintenance and exercising is another important aspect of the District's preventative maintenance program. All valves are lubricated and exercised every two years.

Pipeline Replacement Program – The District has an ongoing cast iron pipe replacement program with a budget of \$900,000 this year.

Corrosion Control – To minimize the possibility of leakage, the District conducts an extensive corrosion control program. One of the more important features of a corrosion control program is cathodic protection. Under certain conditions, pipes and valves may be damaged due to contact with soils that are reactive with the materials these facilities are made of. The District has installed cathodic protection on 2 transmission mains and 3 steel reservoirs as part of this program.

Verified Uses	Report date (data is from previous year)			
	2001 (AF)	2002 (AF)	2003 (AF)	2004 (AF)
Water Purchased from Metropolitan Water District	4,696	4,643	4,934	4,776
Metered Sales	4,453	4,409	4,431	4,467
Less Internal Uses	0	0	0	0
Unaccounted for Water (UAW)	243	234	503	308
% UAW	5.2%	5%	10%	6%

Information from MWDOC's "Orange County Water Agencies Water Rates, Water System Operations, and Financial Information, 2001-2004"

(4) Metering with commodity rates for all new connections and retrofit of existing connections.

The District requires meters for all new water connections and bills by volume of use. All water service connections in the District are metered.

Meters are read on a sixty-one day schedule. Customers are billed bi-monthly on the basis of a commodity charge and a service charge. The most recent water rates set the commodity charge at \$2.82 per ccf (1 ccf = 748 gallons). The customer charge is based on meter size (\$15.00 for a 3/4-inch standard residential meter). The service charge increases by meter size.

(5) Large landscape conservation programs and incentives.

The District participates in MWDOC's regional programs targeting landscape irrigation efficiency. MWDOC and Metropolitan provide sponsorship and performance based funding for these programs to offset the cost to the customer. These programs include the Landscape Contractor Certification Program, the Computer Controlled Irrigation System Retrofit Projects, and the Protector Del Agua Irrigation Management Training.

(6) High-efficiency washing machine rebate programs.

Since 2001, MWDOC, Metropolitan and the District have sponsored a \$100 rebate for Laguna Beach residents who purchase High Efficiency Clothes Washers (HECWs). Rebates are available on a first-come, first-served basis, while funds last. Current requirements include that machines be purchased and installed in Laguna Beach after January 1, 2002. Participants must be willing to allow an

Section 2

Contents of Urban Water Management Plan

inspection of the installed machine for verification of program compliance. These machines use 15 to 25 gallons less water per load and, depending on use, can save 7,000 gallons of water per year. Effective May 1, 2005, machines must have a water factor of 6.0 or less.

In addition to the \$100 MWDOC rebate, Southern California Gas, the gas provider for the Laguna Beach area, has offered an additional rebate of \$35-\$75, at various times, for high-efficiency washers.

High-Efficiency Washer Rebate results from program inception to 7/30/05:						
	FY 2001-02	FY 2002-03	FY 2003-04	FY 2004-05	FY 2005-06 (as of 7/30)	Total for all years
\$ per rebate	\$100	\$100	\$100	\$100	\$100	298 rebates 3.83 AF
# of rebates paid	17	88	119	66	8	
Water savings- AF/Y	.21*	1.13*	1.53*	.85*	.10*	

* calculation= (# of rebates x 11.5 gpd x 365 days/year)/325,851 gal/AF; 11.5 gpd savings/HECW was supplied by MWDOC

(7) Public information programs.

This DMM requires agencies to implement and maintain public information programs to promote water conservation and educate customers about water use. The District considers its public education and school programs to be essential components of a water conservation 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 a full-time Community Relations Coordinator and part-time Conservation Coordinator 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 such as the June, 2005 landslide and the District's reconstruction efforts, water rate changes, as well as water conservation information on such topics as rebates, irrigation and landscaping, and other water conservation resources.
- **Bill Inserts:** In the past year, the District has sent out inserts for the Smart-Timer program. Conservation messages can also be 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.
- **Press Releases:** The District provides press releases on District issues to the three local newspapers. In May 2005, staff provided a press release and historical photographs to a local paper in honor of the District's 80th Anniversary. The release generated a two-page article.
- **Letters to State Legislature:** The District coordinates efforts with the MWDOC and the Association of California Water Agencies (ACWA) to lobby the state legislature on pending

Section 2

Contents of Urban Water Management Plan

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 on a table inside the District lobby, as well as outdoors in waterproof literature racks.
- **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 make-up of the site. Local residents and tourists stroll through the grounds regularly and gather gardening inspiration from the Water 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 Metropolitan Water District of Southern California 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.

- **Garden Information:** In 2005 the District set up a computer kiosk in the lobby to disseminate information on fire-safe and water-wise plants featured in the District's demonstration garden. By 2007, the District plans to create a website and put this information on the kiosk, along with other water conservation websites and resources.
- **Full-time Community Relations Coordinator:** Since hiring a community relations coordinator in 2005, the District has produced a newsletter, developed a Speaker's Bureau, and increased outreach to businesses and schools.
- **Speakers Bureau:** Upon request, the General Manager, Public Affairs, or Conservation staff will speak to groups on a variety of water-related topics. During 2005, the following groups requested speakers from the District: the Laguna Beach Rotary Club, the Chamber of Commerce, and the 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.
- **Open House:** Every other year, the District participates in a City-wide Open House day where all of the local public service agencies open their doors to the public for outreach, education, and fun activities for kids.
- **Participation in local Farmers Market:** District staff provides conservation literature, rebate forms, and answers questions at the local farmers' market every other month. The farmers' market is held year-round in downtown Laguna.
- **Water-wise Poster Contest:** Since 2003, the District has held an annual school poster contest. Second through fourth graders in the District's service area are invited to submit

Section 2

Contents of Urban Water Management Plan

posters on the topic of water conservation. Winners receive prizes and recognition at a District Commission meeting and their art is displayed in the District's lobby.

- **Water-wise 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.

In addition, the District participates in MWDOC's comprehensive public information program that fosters communication, coordination, and partnerships with its member agencies and cities, Metropolitan, and other local, state, and federal legislative and regulatory bodies. MWDOC's programs are carried out on behalf of and in coordination with its member agencies, including the District. The District participates in the monthly Public Affairs Workgroup meetings conducted by MWDOC in an effort to coordinate public outreach and share information and ideas on a countywide basis.

MWDOC's publications and other public information services supplement those of the District to provide the public with accurate information regarding present and future water supplies, the demands for a reliable supply of high quality water, and the importance of implementing water efficient techniques and behaviors. Information on availability of water use efficiency programs and technology, including toilet exchanges, water awareness month activities, regional programs and water rates, are routinely included as water bill inserts, placed at public counters, discussed on local cable channels, and provided on request.

(8) School education programs.

This Demand Management Measure requires water suppliers to implement a school education program that includes providing educational materials and instructional assistance.

The District has been continuously active in this area by providing free classroom presentations and tours of District facilities to schools within the city. 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.

City of Laguna Beach Education Day – Since 2001, third grade students from local schools visit the District each year to learn about various water-related issues. In 2003 and 2004, more than 75 students toured the District and learned about its history and the importance of water conservation. In 2005, approximately 100 students visited the District and learned about the cost of water, the history of the District, and the Water-Wise and Fire-Safe Demonstration Garden.

Water Awareness Poster Contests - The District has held Water Awareness Poster Contests in 2004 and 2005. In 2004, approximately 70 elementary students participated. In 2005, there were over 140 entries. Winners are recognized at a District Commission meeting, in local newspapers, and their posters are displayed on the walls of the District. In 2005, middle school and high school students were also invited to participate.

Water District Open House - The District helped over 100 local children make "water cycle" bracelets at the Open House. Pencils and stickers with conservation messages were also distributed.

Section 2

Contents of Urban Water Management Plan

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

Newsletters for Teachers – A quarterly newsletter promotes District resources available to teachers including Project WET training, Laguna Education Day, the District’s Lending Library, classroom presentations and other services.

Classroom Presentations – The District has participated in MWDOC’s School Education Program since its inception in January 1973. The program has evolved into what has become the standard for all water-education curriculum. To date, nearly 2.5 million Orange County students have benefited from the Program.

(9) Conservation programs for commercial, industrial, and institutional accounts.

As a member agency of MWDOC, the District participates in commercial, industrial, and institutional water conservation programs:

- a. **Save Water – Save A Buck** - Offers rebates to help commercial, industrial and institutional customers update facilities by replacing older toilets and clothes washers, purchasing pressurized water brooms, installing pre-rinse spray head nozzles and upgrading other water-using commercial fixtures. Rebates include:
 - a. Ultra-low-flush toilet \$60 rebate
 - b. Ultra-low-flush Urinal \$60
 - c. Flush Valve Retrofit Kit \$15
 - d. Commercial Washer \$250 or more
 - e. Water Pressurized Broom \$100
 - f. Pre-Rinse Kitchen Sprayer \$50
- b. **Pilot Waterless Urinal Program** – The District received a United States Bureau of Reclamation Grant to implement a pilot program for waterless urinals in high traffic public restrooms in Laguna Beach. This program is scheduled for implementation in December 2005.
- c. **Smart-Timer Irrigation Controller Program** – The District is participating with other Orange County Water Agencies in a Commercial Smart-Timer Rebate Program. The program offers rebates to commercial accounts that upgrade existing irrigation controllers to “smart” technology that fully automates landscape watering based on the weather and water needs of plants.
- d. **Protector del Agua** – The District participates with MWDOC to publicize its Protector del Agua Landscape Water Management Course designed specifically for landscape professionals. The course includes basic irrigation principles of soil-plant-water relationships and concludes with irrigation scheduling.

(10) Wholesale agency programs

As a member agency of MWDOC, the regional wholesaler of imported water to Orange County, the

Section 2

Contents of Urban Water Management Plan

District receives assistance to implement water use efficiency programs. MWDOC organizes and supports many conservation measures including: a planned training for Home Water Surveyors, a \$100 rebate for high-efficiency washing machines, a joint rebate program for residential and commercial weather-based irrigation controllers, assistance with public information to support joint and MWDOC-based programs, hosting of conservation coordinator monthly meetings, rebates on ultra-low-flush toilets to replace less-efficient models, and general water conservation support.

The District continues to work cooperatively with MWDOC to participate in regional BMP programs, informational groups and projects, determination of the most cost effective Best Management Practices (BMPs), and tailoring programs specific to the District's service area.

In addition, Metropolitan Water District provides commercial rebates for high-efficiency toilet replacements, urinals, water brooms, cooling towers, and other water-using commercial fixtures. They also provide grant funding to agencies for various water conservation programs, as well as public information on landscaping and irrigation issues.

(11) Conservation pricing.

A definition of conservation pricing is "rates designed to recover the cost of providing service." The District's rates are designed in this manner. The commodity component of the monthly water service charges recovers the actual cost of water. The District's billing system registers increases in individual service consumption and allows for periodic review of customer water use by comparing current water use with historic data. If there is an extreme increase, a customer service representative is dispatched to make personal contact with the customer to investigate. Customers can also track their bi-monthly usage by comparing consumption information provided on their water bill statement.

(12) Water conservation coordinator.

The District's Administration and Public Affairs Department consists of two full-time and one part-time staff members. Each handles a variety of tasks related to water conservation and community information.

- a. **Department Manager** (Full-time) – Manages District's community outreach, conservation, legislative, public relations, school education, and human resources programs.
- b. **Community Relations Coordinator** (Full-time) – Assists in performing a variety of public outreach and community relation's activities, including implementing a school education program and assisting in conservation programs.
- c. **Water Conservation Coordinator** (Part-time) – Assists in implementing various water conservation programs for the District and participates in public outreach activities designed to promote water conservation.

(13) Water waste prohibition.

The District implements water waste prohibitions during times of water shortages as outlined in its Water Supply Shortage Contingency Plan.

Section 2

Contents of Urban Water Management Plan

(14) Residential ultra-low-flush toilet replacement programs.

MWDOC administers a regional rebate program available to customers of the District and jointly funds (with Metropolitan, OCWD, and the OCSD) free ultra-low-flow toilet (ULFT) distribution events throughout Orange County.

The MWDOC ULFT Replacement Program is a key component of its water use efficiency effort over the last five years. MWDOC has distributed over 170,000 ULFT's throughout Orange County using several types of distribution programs. Distribution formats include rebates, free distributions, co-pay distributions, and member agency distributions. All water agencies in Orange County benefit from this ongoing regional program. Estimated water savings from these retrofits total more than 6,200 acre feet per year countywide.

ULF Toilets Distributed or Installed						
Fiscal Year	Rebate Program		Distribution Program		Totals	
	Single-family	Multi-family	Single-family	Multi-family	Single-family	Multi-family
93-94			146	15	146	15
94-95			108	14	108	14
95-96			57	36	57	36
96-97			106	12	106	12
97-98	36	2	22	14	58	16
98-99	39	5	1	104	40	109
99-00	35	11	156	104	191	115
00-01	15	7	185	13	200	20
01-02	36	5	44	0	80	5
02-03	28	1	200	42	228	43
03-04	25	3	82	8	107	11
04-05	23	9			23	9
05-06	3				3	0
Total	240	43	1107	362	1347	405

Water Code section 10631

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

PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

Laguna Creek Watershed Project

As the reliability of southern California's water sources become more questionable, augmenting local supply is becoming increasingly critical. The District's Laguna Creek Watershed Project proposes to reclaim and treat local runoff and storm water in Laguna Creek. The treated water would be recharged into the Laguna Canyon Groundwater Basin and extracted for potable use.

It is estimated that the groundwater basin is capable of supplying 200-300 acre-feet of potable water. The potential of increasing the production of the basin exists by catching, treating, and recharging storm water runoff, as well as local nuisance water, into the basin. There is an additional benefit of cleaner beaches through contaminate removal from the storm water and nuisance runoff.

The proposed project will be divided into several components:

- d. **Groundwater Extraction** - A number of extraction wells, joined by a common pipeline, will be drilled throughout the Laguna Canyon Basin. This pipeline will convey the groundwater extracted from the basin to a storage reservoir downstream of the wells. From the reservoir, the water will be sent through a treatment plant. Treatment of the water will occur depending on its final use.
- e. **Storm water and nuisance water catchments** - The surface water that intermittently flows in Laguna Canyon, made up of storm water and local nuisance runoff, will be caught and stored. Various types of treatment will be considered, depending on the final water use, which could include reclaimed use, groundwater recharge, and potable use.
- f. **Groundwater Recharge** - Once storm water and nuisance urban runoff have been captured, a system that will treat and transport the water to the upper reaches of the Laguna Creek basin for recharge is proposed. The system will include a booster pump station, transport pipeline, and injection pits or wells.

Geographical Location

The Laguna Creek watershed lies in the San Joaquin Hills of southern Orange County. The drainage area of approximately 5,412 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,

Section 2

Contents of Urban Water Management Plan

with steep slopes forming Laguna Canyon. Elevations reach 1,000 feet above sea level in parts of the drainage basin.

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 in general, however, the drainage basin is dry with only sufficient water discharge to reflect losses from groundwater sources and urban runoff.

See Tables 6 and 7, Section 2, page 2-11 for historical and estimated future production.

Laguna Beach Well in the Santa Ana Basin

The District proposes the development of a water production well in the Santa Ana Basin. The objective is to exercise the District's groundwater rights that originated in 1926, as confirmed in a 1933 judgment. The purpose of the project is to supply the District with a replacement source of water in times of emergency or in the case of cutbacks of Metropolitan Water District supplies. Presently, all of the District's water supplies are obtained from imported sources. Previous droughts have evidenced the uncertainty of depending on these imported supplies in the future. Even if the quantity of these supplies remains stable, the demand for water resources will increase with area population growth. This, and the rising costs of imported water, has indicated the need for the District to find alternative sources of water. Water resources from the proposed well would be used as an alternative supply or replacement capacity.

The proposed water production well will consist of a water well, up to 1,400 feet deep, a pumping station, water treatment facilities and an emergency generator. Based on the production capacity of nearby wells, the proposed well is expected to have a production capacity of 2,025 acre-feet per year and would be drawn from the main aquifer at an estimated depth of 400 to 900 feet below land surface.²

TABLE 17: Future Water Supply Projects							
Project Name	Projected start date	Est. Projected completion date	2010				
			Normal year AF to agency	Single dry year yield AF	Multiple Dry Year 1 AF	Multiple Dry Year 2 AF	Multiple Dry Year 3 AF
LBCWD Laguna Creek Watershed Project	Unknown	2007-08	200	200	200	200	200
Laguna Beach Well in the Santa Ana Basin	Unknown	2009-10	2,025	2,025	2,025	2,025	2,025

² Laguna Beach County Water District Santa Ana River Basin Well Project – draft Environmental Impact Report, October 1999.

Section 2

Contents of Urban Water Management Plan

2015							
Project Name	Projected start date	Est. Projected completion date	Normal year AF to agency	Single dry year yield AF	Multiple Dry Year 1 AF	Multiple Dry Year 2 AF	Multiple Dry Year 3 AF
LBCWD Laguna Creek Watershed Project	Unknown	2007-08	200	200	200	200	200
Laguna Beach Well in the Santa Ana Basin	Unknown	2009-10	2,025	2,025	2,025	2,025	2,025

2020							
Project Name	Projected start date	Est. Projected completion date	Normal year AF to agency	Single dry year yield AF	Multiple Dry Year 1 AF	Multiple Dry Year 2 AF	Multiple Dry Year 3 AF
LBCWD Laguna Creek Watershed Project	Unknown	2007-08	200	200	200	200	200
Laguna Beach Well in the Santa Ana Basin	Unknown	2009-10	2,025	2,025	2,025	2,025	2,025

2025							
Project Name	Projected start date	Est. Projected completion date	Normal year AF to agency	Single dry year yield AF	Multiple Dry Year 1 AF	Multiple Dry Year 2 AF	Multiple Dry Year 3 AF
LBCWD Laguna Creek Watershed Project	Unknown	2007-08	200	200	200	200	200
Laguna Beach Well in the Santa Ana Basin	Unknown	2009-10	2,025	2,025	2,025	2,025	2,025

2030							
Project Name	Projected start date	Est. Projected completion date	Normal year AF to agency	Single dry year yield AF	Multiple Dry Year 1 AF	Multiple Dry Year 2 AF	Multiple Dry Year 3 AF
LBCWD Laguna Creek Watershed Project	Unknown	2007-08	200	200	200	200	200
Laguna Beach Well in the Santa Ana Basin	Unknown	2009-10	2,025	2,025	2,025	2,025	2,025

WATER CODE SECTION 10631(I)

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

DEVELOPMENT OF DESALINATED WATER

MWDOC recently 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 development of an ocean water desalination facility that would provide South Orange County with a new local source of water. Such a project would also increase reliability to the area that is almost entirely dependent on imported water, depends on only two imported water delivery pipelines to serve more than 500,000 people, and is subject to interruptions should it experience another imported water pipeline outage as it did in 1999. While still in the feasibility stage, MWDOC is proposing the construction of a 10 - 20 Million Gallon per Day (MGD) reverse osmosis (RO) ocean desalination facility to supply water to South Orange County. The facility would produce a new water supply of 12,000 to 24,000 acre-feet per year, diversify the sources of supply, provide drought protection, improve system reliability, and improve water quality by providing a lower level of Total Dissolved Solids (TDS) in the supply. This will be especially helpful in expanding water recycling opportunities for South Orange County.

Potential sites for a South Orange County ocean water desalination facility include Dana Point and a somewhat larger facility at Camp Pendleton Marine Base in Northern San Diego County, which could provide water service to Orange County, San Diego County, and improve the water security to the U.S. Marine Corps at Camp Pendleton. The project at Camp Pendleton would be a joint effort between MWDOC and the San Diego County Water Authority. It would potentially use the existing intake and outfall facility from the San Onofre Unit 1, which is currently in the process of being decommissioned.

MWDOC Proposed Dana Point Ocean Desalination Project. MWDOC is currently investigating the feasibility of an ocean water desalination plant in Dana Point adjacent to San Juan Creek. At this time, the overall feasibility investigation is focused in three areas:

- (1) Feed water supply utilizing a subsurface intake system,
- (2) Concentrated RO reject seawater co-disposal through an existing South Orange County Wastewater Authority ocean outfall, and
- (3) Energy supply.

Upon completion of this work, an updated project feasibility report will be prepared and a go/no-go decision will be made.

In February/March 2005, MWDOC conducted the first phase of its hydrogeology and water quality testing at this possible site in Dana Point at Doheny State Beach. Results of the initial testing are promising and MWDOC is now continuing to the next phase of feasibility testing. Throughout this effort, MWDOC has worked closely with the city of Dana Point, the South Coast Water District, and the California State Department of Parks and Recreation. MWDOC has also completed target community outreach to important stakeholders such as the Surfrider Foundation, Orange County

Section 2

Contents of Urban Water Management Plan

Coast Keeper, and other environmental groups.

If completed, this project will provide both system and supply reliability to the south Orange County area. MWDOC commissioned a preliminary feasibility study of the project in 2000, and the results suggested that the site might be feasible for a 25 mgd desalination project. The recommended source of feed water supply is an open-intake system. Upon further review of the preliminary subsurface intake system study, it was determined that a subsurface intake system may be feasible at this location.

Due to environmental issues, including entrainment and impingement impacts to marine organisms, and permitting challenges associated with constructing a new open intake system, a decision was made to conduct a more extensive hydrogeology investigation at this location.

The mouth of San Juan Creek is entirely situated within Doheny State Beach, and any work or project development requires the approval of the California Department of Parks and Recreation. Also, construction would be limited to the winter months, and the project would need to be configured to minimize impacts to the public and the park. One concept being investigated is a buried, passive collection system that would result in short-term construction impacts to Doheny State Beach. State Parks has been very cooperative in approving the Phase 1 Hydrogeology Investigation, which was conducted in February 2005. That work found the alluvial channel system to be deeper and more permeable than originally found in the preliminary feasibility study.

MWDOC has received a California Department of Water Resources Proposition 50 Desalination Research and Development grant proposal in the amount of \$1,000,000 to investigate combining horizontal directional drilling with water well technology for use in constructing long, larger diameter feed water supply wells in the marine alluvial channel system.

TABLE 18: Opportunities for Desalinated Water				
Sources of Water	Yield AF/Y	Start Date	Type of use	Other
Ocean Water	2,000	2015	Potable	

Section 2

Contents of Urban Water Management Plan

Water Code section 10631

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

CURRENT OR PROJECTED SUPPLY INCLUDES WHOLESAL WATER

Currently, the District receives 100 percent of its imported water supply (4,768 acre-feet) from Metropolitan delivered by MWDOC. MWDOC represents the interests of nearly all of Orange County and is Metropolitan's third largest member agency. MWDOC is Orange County's imported water wholesaler supplying 30 water retailers. These entities, comprised of cities and water districts, are referred to as MWDOC member agencies and provide water to approximately 2.3 million customers.

TABLE 19: Agency Demand Projections Provided to Wholesale Suppliers – AF/Y					
Wholesaler	2010	2015	2020	2025	2030/opt
Municipal Water District of Orange County	2,628	2,678	2,728	2,773	2,773

TABLE 20: Wholesaler identified & Quantified the Existing and Planned Sources of Water Available to Your aAgency in – AF/Y					
Wholesaler Sources	2010	2015	2020	2025	2030/opt
Municipal Water District of Orange County	2,628	2,678	2,728	2,773	2,773

TABLE 21: Wholesale Supply Reliability - % of Normal Supply					
Wholesaler	Single Dry	Multiple Dry Water Years			
		1961	Year 1 (1959)	Year 2 (1960)	Year 3 (1961)
Municipal Water District of Orange County	2010	110%	188%	141%	110%
Municipal Water District of Orange County	2015	110%	111%	106%	110%
Municipal Water District of Orange County	2020	110%	111%	106%	110%
Municipal Water District of Orange County	2025	110%	112%	106%	110%
Municipal Water District of Orange County	2030	110%	112%	107%	110%

TABLE 22: Factors Resulting in Inconsistency of Wholesaler's Supply				
Name of supply	Legal	Environmental	Water Quality	Climatic
Municipal Water District of Orange County				X

Determination of Demand Management Implementation

Water Code section 10631.5

The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

DETERMINATION OF DEMAND MANAGEMENT IMPLEMENTATION

Water Demand Management Measures					
BMP #	EFFICIENCY MEASURE	Current LBCWD program	Past	Planned	Wholesaler Program (MWDOC/Metropolitan)
1	Residential Water Surveys	No	No	Yes	Yes
2	Residential Plumbing Retrofits	No	Yes	Yes	Yes
3	System Water Audits, Leak Detection and Repairs	Yes	Yes	Yes	No
4	Metering with Commodity Rates	Yes	Yes	Yes	No
5	Large Landscape Conservation Programs	No	No	No	No
6	High-Efficiency Washing Machine Rebates	Yes	No	No	Yes
7	Public Information Programs	Yes	Yes	Yes	Yes
8	School Education Programs	Yes	Yes	Yes	Yes
9	Commercial, Industrial and Institutional Programs	Yes	Yes	No	Yes
10	Wholesale Agency Assistance	N/A	N/A	N/A	Yes
11	Conservation Pricing	Yes	Yes	N/A	No
12	Conservation Coordinator	Yes	Yes	Yes	No
13	Water Waste Prohibition	Yes	No	No	No
14	Residential ULFT Replacement Programs	Yes	Yes	No	Yes

Section 4

Water Shortage Contingency Plan

Water Code Section 10632

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

- (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) Penalties or charges for excessive use, where applicable

WATER SUPPLY EMERGENCY RESPONSE PLAN

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, 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, it is important to implement a water shortage contingency plan.

The following table summarizes the actions the District will take during a water supply catastrophe.

Stage Number	Water Supply Conditions	% Shortage
Stage 1	Total deliverable supply is 85-95 percent of "normal"	5-15 percent
Stage 2	Total deliverable supply is 70-85 percent of "normal"	15-30 percent
Stage 3	Total deliverable supply is 50-70 percent of "normal"	30-50 percent
Stage 4	Total deliverable supply is 50 percent of "normal"	Over 50 percent

Source	Normal			Multiple Dry Year		
	2006	2007	2008	2006	2007	2008
Local Supplies	0	108	200	0	108	200
Imported Supply	4,790	4,700	4,608	5,110	4,878	4,875
Total	4,790	4,808	4,808	5,110	4,986	5,075

Section 4

Water Shortage Contingency Plan

Section I: Declaration of Policy, Purpose, and Intent

To conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety, as well as minimize the adverse impacts of emergency conditions, the District has adopted regulations and restrictions on the delivery and consumption of water during declared emergencies.

Water uses regulated or prohibited under this Water Supply Emergency Response Plan are considered non-essential uses. Continuation of such uses during an emergency water supply condition constitute a waste of water, which subjects the offender(s) to penalties as defined in Section IX of this plan.

Section II: Types of Emergencies

Short-term Water Supply Emergency – This type of emergency results from natural disaster, major main breaks, prolonged power outage, or other events that limit the District’s immediate ability to provide adequate water service to meet the requirements for human consumption, sanitation, and fire protection. Such emergencies are of a limited duration, and at the time of declaration, are not expected to last more than a few weeks.

Long-term Water Supply Emergency – This type of emergency results from prolonged drought, contamination, major disaster that destroys critical water supply facilities, or other situations that jeopardize the District’s ability to meet normal demand for human consumption, sanitation, and fire protection for the foreseeable future. When declared, it is anticipated that a considerable period of time will pass until normal supply production can be resumed (e.g. supply levels reach acceptable recovery after drought, contamination is removed, or lost water supply facilities are replaced.)

TABLE 25: Preparation Actions for a Catastrophe	
Possible Catastrophe	Summary of Actions
Regional power outage	Short-term Water Supply Emergency Actions as described below
Earthquake	Long-term Water Supply Emergency Actions as described below
Supply Contamination	Long-term Water Supply Emergency Actions as described below
Terrorist Act which interrupts service	Long-term Water Supply Emergency Actions as described below

Section III: Authorization

Short-term Water Supply Emergency: The General Manager or his/her designee is authorized and directed to implement the applicable provisions of this plan when it is immediately necessary to protect public health, safety, and welfare. The General Manager, or his/her designee, will initiate or terminate short-term water supply emergency response measures as described in this plan. The decision of the General Manager to initiate or terminate emergency response measures will be presented to the Commission and the Board of Directors for ratification at the next noticed meeting.

Long-term Water Supply Emergency: The Board of Directors will determine the need to declare long-term emergencies and authorize implementation of the applicable provisions of this plan, as necessary to protect public health, safety, and welfare. Prior to implementing mandatory measures in response to a long-term emergency, the Board of Directors will conduct a public hearing on the proposed measures to reduce demand prior to imposing such measures.

Section IV: Application

The provisions of this plan apply to all persons, customers, and property using water provided by the District. The terms “person” and “customer” include individuals, businesses, public agencies, corporations, partnerships, associations, and all other legal entities.

Section V: Definitions

For the purposes of this plan, the following definitions apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use, which is integral to the operations of commercial and non-profit establishments and governmental entities, such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water, ensuring that a supply is conserved for future or alternative uses.

Customer: any person, company, or organization using water supplied by the District.

Domestic water use: water use for personal needs, household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.

Non-essential water use: water uses that are not essential or required for the protection of public health, safety, and welfare, including:

- (a) Irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this plan;
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- (c) Use of water to wash down sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- (d) Use of water to wash down buildings or structures for purposes other than immediate fire protection;
- (e) Flushing gutters or permitting water to run or accumulate in any gutter or street;
- (f) Use of water to fill, refill, or add to any indoor or outdoor swimming pools or jacuzzi-type pools;
- (g) Use of water in a fountain or pond for aesthetic or scenic purposes, except when necessary to support aquatic life; and
- (h) Failure to repair a controllable leak(s) within a reasonable period after notice has been given to repair such leak(s).

Section VI: Criteria for Initiation and Termination of Short-term and Long-term Water Supply Emergency Response Stages

In the event of reduced water production, the General Manager or his/her designee will monitor water supply and/or demand conditions on a daily basis and determine when conditions warrant initiation or termination of each stage of the plan. Each stage of the emergency may be rescinded when the conditions identified as triggering events have ceased to exist. Also, a lower stage of emergency may be invoked as supply improves.

Notification of the Board of Directors and Commission: The General Manager or his/her designee will contact the Commission and Board to advise them of the water-supply emergency and the short-term emergency actions to be taken. The matter will be presented to the Board of Directors for ratification at their next meeting.

Notification of the Public: The General Manager or his/her designee will notify the public by publication in a newspaper of general circulation, radio and television public service announcements, direct mail to each affected customer, signs posted in public places, and any other method deemed necessary by the General Manager or his/her designee. When a public hearing is to be conducted to consider water supply emergency response, public display ads will be published in a newspaper of general circulation giving the nature of the water supply emergency, the actions being considered and the time, date and place of the hearing, in addition to other legal requirements for noticing public hearings, as specified in the California Government Code.

Section VII: Water Supply Emergency Response Stages

Stage 1 Response -- Voluntary Conservation

Goal: Achieve up to a 15 percent voluntary reduction in daily water demand.

District Water Management Measures:

1. Notify affected customers of water shortage.
2. Provide information to customers on ways to improve efficiency.
3. Conduct media campaign to remind customers of the need to save water.
4. Prohibit flushing of District water lines, except in the immediate interest of public health, safety, and welfare.

In the event of a long-term supply shortage, the following actions will also be taken:

5. Publicize and expand the District's water use efficiency programs.
6. Limit or condition new service applications. Communicate the District's supply shortage and the necessity of resolution prior to approval of additional connections.

Voluntary Water Use Restrictions:

1. Customers are requested to voluntarily limit the irrigation of landscaped areas.
2. Customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.
3. Restaurants are encouraged to serve water only on request.

Section 4

Water Shortage Contingency Plan

- notice directing the repair of such leak(s); and
8. Watering of turf by public agencies.

Stage 3 Responses - Mandatory Conservation

Goal: Achieve up to a 50 percent reduction in daily water demand.

Water Use Restrictions. All requirements of Stage 2 will remain in effect during Stage 3 except:

1. Irrigation of landscaped areas is prohibited.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited.

TABLE 26: Mandatory Prohibitions	
Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Using potable water for street washing	Stage 2
All restaurants are prohibited from serving water to patrons except upon request of the patron.	Stage 3
Irrigation of landscaped areas is absolutely prohibited.	Stage 3 and 4
Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.	Stage 3 and 4
Use of water to fill, refill or add to any indoor or outdoor swimming pools, wading pools, hot tub or jacuzzi-type pools (public or private) is prohibited.	Stage 2 and 3
Irrigation shall be by means of hand-held hoses, hand-held buckets, soaker hoses, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.	Stage 2 and 3
Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a re-circulation system.	Stage 2 and 3

Stage 4 Responses - Water Allocation

Goal: Achieve over a 50 percent reduction in daily water demand.

Water Use Restrictions. All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

1. In the event that water shortage conditions threaten public health, safety, and welfare, the General Manager is authorized to allocate water according to the following water allocation plan:

Single-Family Residential Customers: The allocation to residential water customers residing in a single-family dwelling over a two-month period will be:

Tier 1: 0-20 units per household. (Equivalent to 62 gallons per person per household per day)

“Household” means the residential premises served by the customer’s meter. “Persons per household” includes only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It is assumed that a customer’s household is comprised of four (4) persons, unless the customer completes a form notifying the District of a greater number of

Section 4

Water Shortage Contingency Plan

persons per household. Each additional person over four (4) persons per household receives an allotment of five (5) units. Any person who knowingly, recklessly, or with criminal negligence falsely reports the number of persons in a household will be subject to a fine.

Master-Metered Multi-Family Residential Customers: The General Manager, or his/her designee, will establish a bi-monthly water allocation for each Master-Metered Multi-Family Residential customer. The allocation is based on number of units and historical average usage. The notice of allocation will be mailed to each customer. However, if a customer does not receive the notice, it will be the customer's responsibility to contact the District to determine the allocation. Upon request of the customer or at the initiative of the General Manager, the allocation may be reduced or increased if (1) the designated period does not accurately reflect the customer's normal water usage, (2) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established to the District's Commission or Board of Directors.

Commercial/Government Customers: The General Manager, or his/her designee, will establish a bi-monthly water allocation for each Commercial/Government customer. The Commercial/Government customer allocation is approximately 50 percent of the customer's usage based on historical average usage. The District will notify each customer of his/her allocation. If however, a customer does not receive the notice, it will be the customer's responsibility to contact the District to determine the allocation. Upon request of the customer or at the initiative of the General Manager, the allocation may be reduced or increased if (1) the designated period does not accurately reflect the customer's normal water usage, (2) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established to the District's Board of Directors.

Irrigation Meters: The use of water through irrigation meters is prohibited.

Table 27 - Consumption Reduction Methods	
Examples of Consumption Reduction Methods	Stage When Method Takes Effect
Demand reduction program	All stages
Restrict for only priority uses	Stage 4
Use prohibitions	All stages
Water shortage pricing	All stages
Per capita allotment by customer type	Stage 4
Plumbing fixture replacement	All stages
Voluntary rationing	Stage 1
Mandatory rationing	Stages 2, 3, 4
Incentives to reduce water consumption	All Stages
Education Program	All Stages
Percentage reduction by customer type	Stage 4
Restrictions on new or expanded service	Stage 2, 3, 4

Section VIII: Enforcement/Penalties

No person will knowingly or intentionally allow the use of water from the District for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this plan, or in an amount in excess of that permitted by the water supply emergency

Section 4

Water Shortage Contingency Plan

response stage in effect at the time.

Any person in control of the property where a violation occurs will be presumed to be the violator, but any person has the right to show that he/she did not commit the violation. Parents are responsible for violations of their minor children but any parent may be excused if he/she proves that he/she had previously directed the child not to use the water in violation of this plan and the parent did not know of the violation.

Any person, firm, partnership, association, corporation, or political entity within the District who is in violation of the water prohibition provisions of this ordinance may be subject to disconnection of water service. Prior to disconnection, a written notice will be sent, which states the time, place, and general description of the violation. After two such notices, with a minimum of 24 hours between notices, a third notice will be issued and the date the water service will be disconnected. Upon issuance of the third notice or violation, the service is subject to a re-establishment of service charge, to be determined by the District's General Manager, whether or not water service is in fact physically terminated. The alleged violator may request a hearing with the General Manager regarding disconnection of service.

The District's Board of Directors may also adopt a resolution establishing a surcharge on water used in excess of an established base year at the time of the shortage. The base-year and surcharge will be determined by the District's General Manager at the time it is determined there is a water shortage.

TABLE 28: Penalties and Charges	
Penalty or Charge	Stage when Penalty takes Effect
Surcharge for Excess Use (to be determined at time of shortage based on current rate)	Stage 3 and 4

Section IX: Variances

The General Manager, or his/her designee, may, in writing, grant temporary variance, until ratified by the Board, for existing water uses otherwise prohibited under this plan if failure to grant a variance causes an emergency condition affecting the health, sanitation, or fire protection for the public, or the person requesting the variance, and if one or more of the following conditions are met:

- (a) Compliance with this plan cannot be technically accomplished during the duration of the water supply shortage or other condition.
- (b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Customers requesting an exemption from the provisions of this plan should file a petition with the District within 5 business days after the plan or an emergency response stage has been invoked. All petitions for variances will be reviewed by the General Manager, or his/her designee, and shall include the following:

- (a) Name and address of the petitioner(s).
- (b) Purpose of water use.
- (c) Specific provision(s) of the plan from which the petitioner is requesting relief.
- (d) Detailed statement as to how the specific provision of the plan adversely affects the petitioner,

Section 4

Water Shortage Contingency Plan

or what damage or harm will occur to the petitioner or others if petitioner complies with this plan.

- (e) Description of the relief requested.
- (f) Period of time for which the variance is sought.
- (g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this plan and the compliance date.
- (h) Other pertinent information.

Variances granted by the District are subject to the following conditions, unless waived or modified by the General Manager or his/her designee:

- (a) Variances granted will include a timetable for compliance.
- (b) Variances granted will expire when the plan is no longer in effect, unless the petitioner has failed to meet specified requirements.

No variance will be retroactive or otherwise justify any violation of this plan occurring prior to the issuance of the variance.

Section 4

Water Shortage Contingency Plan

Water Code section 10632 (g)

(g) 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.

ANALYSIS OF REVENUE IMPACTS OF REDUCED SALES DURING SHORTAGES

During a prolonged drought or water shortage of any kind, the District will experience a reduction in revenue due to reduced water sales. To mitigate the financial impacts of a water shortage, the District has an Operating Contingency Reserve Fund and Rate Stabilization Fund. These funds would be used to stabilize rates during periods of reduced water sales due to a catastrophic interruption of water supply. In addition, the District could postpone its Capital Improvement Program during the duration of the shortage.

In past droughts, the District has imposed rationing and surcharges for overuse. The surcharge was determined by establishing a base year and an allotment for each customer.

ANALYSIS OF 2005-06 BUDGET ESTIMATED REVENUE LOSS - WATER REDUCTION SCENARIOS

	2005-06 (0 %)	2005-06 (15 %)	2005-06 (30 %)	2005-06 (50%)
TOTAL OPERATING REVENUE	\$ 6,510,590	\$ 5,679,740	\$ 4,848,890	\$ 3,741,090
TOTAL WATER PURCHASED	2,378,840	2,042,540	1,706,240	1,257,840
TOTAL NET REV LESS EXP	\$ 4,131,750	\$ 3,637,200	\$ 3,142,650	\$ 2,483,250
TOTAL NET CHANGE REV LESS EXP		\$ 494,550	\$ 989,100	\$ 1,648,500

Section 4

Water Shortage Contingency Plan

ANALYSIS OF 2005-06 BUDGET ESTIMATED OPERATING REVENUE - WATER REDUCTION SCENARIOS

			<u>2005-06</u>	<u>2005-06</u>	<u>2005-06</u>	<u>2005-06</u>
			(0 %)	(15 %)	(30 %)	(50%)
<u>SERVICE CHARGE</u>						
	2004-05					
METER SIZE	METERS	CHARGE				
3/4	7,425	\$ 15.00	\$ 668,250	\$ 668,250	\$ 668,250	\$ 668,250
1	708	30.00	127,440	127,440	127,440	127,440
1 1/2	242	60.00	87,120	87,120	87,120	87,120
2	136	75.00	61,200	61,200	61,200	61,200
3	13	130.00	10,140	10,140	10,140	10,140
4	1	205.00	1,230	1,230	1,230	1,230
TCM	10	270.00	16,200	16,200	16,200	16,200
<u>TOTAL SERVICE CHARGE</u>			<u>971,580</u>	<u>971,580</u>	<u>971,580</u>	<u>971,580</u>
<u>WATER RATE CHARGE</u>						
ESTIMATED AF PURCHASED			4,700	4,700	4,700	4,700
LESS: CONSERVATION			-	705	1,410	2,350
SUB-TOTAL			4,700	3,995	3,290	2,350
LESS: WATER LOSS (3%)			141	120	99	71
TOTAL BILLABLE AF			4,559	3,875	3,191	2,280
X CCF/AF			X 435.6	X 435.6	X 435.6	X 435.6
TOTAL BILLABLE CCF			1,985,900	1,688,015	1,390,130	992,950
X WATER RATE			X 2.39/2.82	X 2.39/2.82	X 2.39/2.82	X 2.39/2.82
TOTAL WATER CHARGE			5,539,012	4,708,160	3,877,308	2,769,506
TOTAL OPERATING REVENUE			<u>\$ 6,510,592</u>	<u>\$ 5,679,740</u>	<u>\$ 4,848,888</u>	<u>\$ 3,741,086</u>
USE			<u>\$ 6,510,590</u>	<u>\$ 5,679,740</u>	<u>\$ 4,848,890</u>	<u>\$ 3,741,090</u>

Section 4

Water Shortage Contingency Plan

ANALYSIS OF 2005-06 BUDGET ESTIMATED WATER PURCHASES - WATER REDUCTION SCENARIOS

	2005-06 (0 %)	2005-06 (15 %)	2005-06 (30 %)	2005-06 (50 %)
<u>WATER PURCHASED</u>				
ACRE – FEET (during warm months)	2,600	2,210	1,820	1,300
X WATER RATE	\$ 473.00	\$ 473.00	\$ 473.00	\$ 473.00
ACRE – FEET (during cool months)	2,100	1,785	1,470	1,050
X WATER RATE	\$ 482.00	\$ 482.00	\$ 482.00	\$ 482.00
TOTAL WATER PURCHASED	\$ 2,242,000	\$ 1,905,700	\$ 1,569,400	\$ 1,121,000
 <u>MET CHARGES</u>				
READINESS-TO-SERVE	90,000	90,000	90,000	90,000
 <u>MWDOC CHARGES</u>				
 <u>WATER PURCHASE CHARGE</u>				
ACRE - FEET	4,700	4,700	4,700	4,700
X ACRE - FEET CHARGE	\$ -	\$ -	\$ -	\$ -
TOT WATER PUR CHARGE	-	-	-	-
 <u>METER CHARGE</u>				
# OF METERS	8,517	8,517	8,517	8,517
X METER RATE	\$ 5.50	\$ 5.50	\$ 5.50	\$ 5.50
TOT METER CHARGE	46,844	46,844	46,844	46,844
TOTAL WATER PURCHASED	\$ 2,378,844	\$ 2,042,544	\$ 1,706,244	\$ 1,257,844
USE	\$ 2,378,840	\$ 2,042,540	\$ 1,706,240	\$ 1,257,840

Section 4

Water Shortage Contingency Plan

TABLE 29: Proposed Measures to Overcome Revenue Impacts	
Names of measures	Summary of Effects
Elevation Charge	Customers in higher elevation zones would pay for pumping costs
Use Reserves earmarked for Capital Improvement Program	Capital Improvement Projects would suffer
Surcharge for Overuse	Capture lost revenue on decreased water sales

TABLE 30: Proposed Measures to Overcome Expenditure Impacts	
Names of measures	Summary of Effects
Postponement of CIP Program	Infrastructure would suffer
Hiring Freeze	Understaffed
Public Information Campaign	Promote better understanding of emergency condition
Eliminate non-essential District water use	

Section 4

Water Shortage Contingency Plan

Water Code section 10632 (h & i)

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

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

DRAFT ORDINANCE AND USE MONITORING PROCEDURE

Draft Ordinance

See Appendices 9-12.

Mechanism for Determining Water Use Reductions

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 the District's Supervisory Control and Data Acquisition System (SCADA).

During Stage 1 and 2 Water Shortage Emergencies, weekly production figures are forwarded to the Engineering/Operations Manager. 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 District's General Manager. If reduction goals are not met, the General Manager will notify the Commission so that corrective action can be taken.

During Stage 3 and 4 Water Shortage Emergencies, the procedure above will be followed, with the addition of a daily production report to the Engineering/Operations Manager and General Manager.

Water Code section 10633 (a – c)

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

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.*
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.*
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.*

REGIONAL WASTEWATER TREATMENT PLANT

The City of Laguna Beach and the Emerald Bay Service District are responsible for the collection of wastewater in the District's service area. Wastewater is collected through sewers and pumped to a 6 million gallon per day regional treatment facility that is owned and operated by the South Orange County Wastewater Authority (SOCWA). The wastewater treatment facility is located in Aliso Canyon and provides secondary treatment for all of the wastewater that is collected along the coastal reaches between Dana Point and Emerald Bay.

The unit operations at the wastewater treatment plant are screening, aerated grit removal, primary clarification, activated sludge aeration and secondary clarification. A portion of the secondary effluent is recycled for irrigation. The tertiary treatment process consists of chemical addition, coagulation, flocculation, filtration, and chlorine disinfection. The rated capacity of the tertiary treatment facility is 4.2 million gallons per day. An average of 3.21 million gallons per day of secondary treated wastewater is discharged into the ocean through the SOCWA ocean outfall at Aliso Creek.

The San Diego Regional Water Quality Control Board (SDRWQCB) is responsible for the permitting and regulating the wastewater treatment facility. SDRWQCB Order 97-52 establishes the reclamation requirements for the reuse of effluent from the joint regional plants that are operated in the San Diego Region.

Because of the District's distance from the Regional Wastewater Treatment Plant and the expense of moving reclaimed water from the plant to the District's service area, there are no uses of recycled water within the District's service area.

Water Code section 10633 (d-g)

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

(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

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

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

POTENTIAL AND PROJECTED USE, OPTIMIZATION PLAN WITH INCENTIVES

Two water district's bordering the District are currently using recycled water for irrigation of large landscaped areas. The District has been able to identify only a few locations within our boundaries that can use recycled water. These sites are scattered and would require extensive distribution systems to reach them. Although detailed cost analysis has not been done, it appears that only a few sites close to neighboring district's using reclaimed water can be economically served.

Section 6

Water Quality Impacts on Reliability

Water Code section 10634

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

WATER QUALITY IMPACTS ON RELIABILITY

The District is a member of MWDOC. As a water wholesaler, MWDOC obtains 100 percent of its supply through Metropolitan Water District. Metropolitan has two primary sources of water, the State Water Project (SWP) and the Colorado River Aqueduct (CRA). The District's supply is a blend of both sources with the proportions of the blend dependent upon the year-to-year availability of CRA and SWP water. Metropolitan recognizes the regional impacts of water quality and emphasizes its commitment to ensure the highest quality water in its Integrated Resources Plan. Planning efforts have identified management strategies that allow flexibility in operations to improve water quality and source protection while maintaining reliability. Metropolitan's water quality staff conducts both required monitoring and monitoring for constituents of concern that are currently unregulated. Over 300,000 water quality tests are performed each year.

Total Dissolved Solids Management

Metropolitan has established an operational policy objective to deliver water to each of its member agencies at a TDS of 500 mg/L when feasible. This requires careful operational planning and management to achieve.

Colorado River Aqueduct

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

State Water Project

SWP TDS levels are significantly lower than CRA water, averaging 250mg/L for water delivered via the East Branch of the SWP and 325 mg/L for the West Branch deliveries. West Branch deliveries have higher TDS levels as a result of salt loading in local streams, operational issues, and evaporation losses at Pyramid and Castaic Lakes. TDS levels and available supply vary based on hydrologic conditions in the Sacramento-San Joaquin watersheds, introduction of saline non-project waters by upstream parties, as well as saline intrusion in the Sacramento San Joaquin Bay Delta. Variations of TDS levels over short periods of time are attributed to seasonal and tidal flow patterns, presenting a unique challenge in trying to achieve Metropolitan's 500 mg/L TDS objective. During periods when TDS levels are high at the SWP intake facilities and in the Colorado River, it may not be possible to meet Metropolitan's salinity objective and maintain water supply reliability. Metropolitan's Board has adopted a statement of needs "to meet Metropolitan's 500 mg/L salinity-by-blending objective in a cost-effective manner while minimizing resource losses and ensuring the viability of recycling and groundwater management programs."

Section 6

Water Quality Impacts on Reliability

Management Actions

Metropolitan has taken numerous actions to reduce TDS concentrations in its water supplies. In 1999, Metropolitan's Board adopted a Salinity Action Plan and a Salinity Management Policy with the goal of delivering water with salinity levels less than 500 mg/L. A three-year joint effort between the U.S. Bureau of Reclamation and a task force of stakeholders led to the development of the Action Plan. A Salinity Summit attended by representatives from over 60 agencies was held as the Action Plan neared completion to discuss regional salinity issues and how to work together to attain salinity management goals. Components of the action plan include:

- Imported water source control and salinity reductions.
- Distribution system salinity management actions.
- Collaborative actions with other agencies.
- Local salinity management actions to protect groundwater and recycled water supplies.

Under the Action Plan, Metropolitan is reliant upon blending of its source water to meet salinity goals. It is anticipated that the TDS goal will be met in 7 out of 10 years. Hydrologic conditions would result in Metropolitan not achieving this goal in the other three years. Member agencies are cognizant of this and have taken this concern into development of their management strategies. Metropolitan has obtained Proposition 13 funding to improve salinity levels for The Water Quality Exchange Partnership and The Desalination Research and Innovation Partnership (DRIP) programs. Metropolitan received \$20 million to develop a water exchange partnership to access high quality water from the Sierras in exchange for SWP water. Funds are being used to develop the program and construct additional infrastructure. A total of \$4 million was received for the DRIP program to develop cost-effective advanced water treatment technologies for removing salts from the CRA, brackish groundwater, wastewater, and agricultural drainage. Under the CALFED Bay-Delta Program, actions are already reducing TDS loading in SWP water, and more actions are planned for the next 30 years. Actions in progress include improved management of salts in the San Joaquin Valley, upstream source control, desalination demonstration projects, and programs to control storm water runoff into SWP aqueducts. In the long-term, additional projects are planned to reduce short-term variations in TDS levels and the long-term average salinity levels.

Without reductions in TDS levels in both the short-term variations and long-term average, desalination of CRA water may be needed. However, at the present time current technologies are expensive, and 5 to 10 percent of the CRA water would be lost during the treatment process. The DRIP program is designed to assist in obtaining a viable solution to reducing CRA TDS levels.

Perchlorate Management

Perchlorate has been detected at low levels in the CRA water supply, but not in the SWP water supply. Therefore, this discussion will focus on the CRA water supply. An exceedance level for perchlorate has not been adopted at this time by DHS. However, DHS has adopted a notification level of 6 g/L, requiring agencies to inform their governing bodies. Notification of customers and the potential health risks is also recommended. DHS recommends non-utilization of sources with perchlorate levels greater than 60 g/L. Perchlorate primarily interfere with the production of hormones for normal growth and development in the thyroid gland. Further research on the health effects of perchlorate is pending. Metropolitan began monitoring for perchlorate in June 1997 after it was detected in the Colorado River and the Lake Mead outlet at Hoover Dam. Sampling was able to isolate the source to the Las Vegas Wash and its potential source in Henderson, Nevada. A quarterly monitoring program for Lake Mead was initiated in August 1997, followed by monthly monitoring of the CRA. The Nevada Division of Environmental Protection manages a remediation project in Henderson

Section 6

Water Quality Impacts on Reliability

area. Since inception, the amount of perchlorate entering the Colorado River has been reduced from 900 pounds per day in 1997 to less than 150 pounds per day as of December 2004.

Management Actions

In 2002, Metropolitan adopted a Perchlorate Action Plan. Plan objectives include:

- Expand monitoring and reporting programs
- Assess the impact of perchlorate on local groundwater supplies
- Track remediation efforts in the Las Vegas Wash
- Initiate modeling of perchlorate levels in the Colorado River
- Investigate the need for additional resource management strategies
- Pursue legislative and regulatory options
- Include information on perchlorate in outreach activities
- Provide periodic updates to the Metropolitan Board and member agencies

Through its Perchlorate Action Plan, Metropolitan has taken a proactive approach towards addressing a potential water quality issue and ensuring minimal or no water supply losses associated with perchlorate.

Total Organic Carbon and Bromide Management

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

Management Actions

Metropolitan's Board adopted a Statement of Needs for the CALFED Bay-Delta Program in 1999 stating that Metropolitan requires a safe drinking water supply for compliance with existing and future regulatory requirements. CALFED's Program has developed numerous conceptual actions to improve Bay/Delta water; however, Metropolitan desires CALFED to adopt water quality improvement milestones. These milestones are necessary to ensure that Metropolitan and its member agencies will be able to comply with pending water quality regulations. Metropolitan's Board has committed to install ozone treatment processes at its two treatment plants that solely treat SWP water to avoid the production of DBPs through chlorination. In addition to the concern of DBPs, some studies have linked negative reproductive and developmental effects to chlorinated water. The other three treatment plants that receive a combination of SWP and CRA water utilize blending to reduce levels of DBPs below regulatory requirements. By 2009 Metropolitan plans on installing ozonation facilities at the remainder of its treatment facilities, removing the percentage of SWP water that requires blending.

Other Contaminants of Concern

Metropolitan has identified various other contaminants of concern to its water supply sources.

Section 6

Water Quality Impacts on Reliability

MTBE

As previously discussed, the use of MTBE as a gasoline oxygenate has resulted in the contamination of surface waters and groundwater. Metropolitan operates boating facilities at its reservoirs. Therefore, these facilities were previously subjected to the introduction of MTBE. MTBE is discharged into surface water from the exhaust of recreational watercraft. MTBE and other oxygenates are regularly monitored in Metropolitan's water supplies. Past monitoring has detected MTBE concentrations varying from non-detect to 3.9 g/L in treatment plant effluent and up to 6.4 g/L in source water effluent.

Metropolitan has taken numerous actions to reduce the contamination of its supplies with MTBE, including supporting state and federal legislation to reduce the impacts of MTBE. At its Diamond Valley Lake and Lake Skinner, MTBE free-fuel and clean burning engines are required to minimize the introduction of MTBE into surface waters. Water monitoring programs for MTBE and other gasoline components were instituted at the lakes. Metropolitan has also investigated various treatment mechanisms for MTBE. Future contamination of water supplies will more than likely decrease as time elapses since the phase-out of MTBE. However, the extent of future contamination is unknown, as MTBE is still within the environment.

Arsenic

Effective 2006, a federal MCL of 10 g/L (10 parts per billion) will go into effect for domestic water supplies. Metropolitan's water supplies contain low levels of this contaminant within the regulatory requirements. Currently, the California Office of Environmental Health Hazard Assessment has set a public health goal of 0.004 g/L for arsenic.

Radon

The USEPA has proposed a radon MCL of 300 pCi/L for drinking water supplies in states where there are no approved Multimedia Mitigation programs for reducing indoor radon. For states with approved programs the standard is 4,000 pCi/L. Metropolitan's supplies have radon levels well below the MCL.

Uranium

Uranium is high priority with Metropolitan as a 10.5 million ton pile of uranium mine tailings is 600 hundred feet from the Colorado River in Moab, Utah. Percolation of rainwater through the pile occurs causing contamination of local groundwater resources and flows of uranium into the River. During a large flood or other natural disaster, there is the potential for large volumes of the contaminated material to flow into the Rivers. Interim action measures, instituted by the Department of Energy (DOE), include intercepting portions of the contaminated groundwater before it enters the River. Concentrations ranging from 950 to 1,190 pCi/L have been detected at the point local groundwater enters the River. At Metropolitan's intake at the River, uranium concentrations of 1 to 5 pCi/L have been detected. California has a drinking water standard for uranium of 20 pCi/L. Metropolitan continues to monitor DOE in clean-up effort.

Emerging Contaminants

NDMA is an emerging contaminant of concern believed to be widespread. NDMA is a disinfection-product of water and wastewater treatment processes. Chlorine and monochloramines can react with organic nitrogen precursors to form NDMA. California notification level is 0.010 g/L. Concentrations ranging from non-detect (reporting limit of 0.002 g/L) to 0.012 g/L. Action measures may be required in the future to control or remove NDMA from water supplies. Hexavalent chromium or chromium VI is a potential surface water and groundwater contaminant. It is an inorganic chemical used in cooling towers for corrosion control, electroplating, leather tanning, wood treatment, and pigment

Section 6

Water Quality Impacts on Reliability

manufacturing. Contaminant pathways include discharges from industrial users, leaching from hazardous waste sites, and erosion of naturally occurring deposits. California has a current MCL for total chromium (includes chromium VI) of 0.05 mg/L. This level is currently under review by DHS. The California Legislature required DHS to set a MCL specifically for chromium VI by January 1, 2004. However, this has not been set at this time. Metropolitan participates in a Technical Work Group reviewing remediation plans for chromium VI near Topock, Arizona along the Colorado River.

Water Quality Protection Programs

Metropolitan participates in multiple programs to improve water quality supplies. Those programs include:

- Watershed Sanitary Survey
- Source Water Assessment in Support of DWR policies and programs improving the quality of deliveries to Metropolitan
- Support of the Sacramento River Watershed Program
- Water quality exchange partnerships
- Implementation of additional security measures.

Imported Water Quality Impacts on Supply Reliability

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

TABLE 39: Current & Projected Water Supply Changes Due to Water Quality - Percentage						
Water source	2005	2010	2015	2020	2025	2030/opt
MWDOC	0	0	0	0	0	0

Section 7

Water Service Reliability

Water Code section 10635

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

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

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

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

WATER SERVICE RELIABILITY

Since the District receives 100 percent of its imported water supply from MWDOC, the following tables reflect the reliability of MWDOC's water service to its customers during three water year scenarios: normal water year, single dry year, and multiple dry water years. MWDOC has concluded that it will be able to meet 100 percent of its demand under every water year scenario.

MWDOC's assessment was done by comparing supply to demand based on historical hydrology that is equivalent to the three types of water year scenarios. MWDOC's determination of historical basis of the water year types was discussed in Section 2. The base years are:

- Normal water year: average of 83 historical hydrology from 1922 to 2004
- Single dry normal water year: 1961 hydrology
- Multiple dry water years: 1959 to 1961 hydrology

The following sections describe and compare the region's water supply and demand during each of the scenarios for the next twenty-five years.

Projected Normal Water Year Supply and Demand

MWDOC analyzed the water demands and supplies for its service area over the next 25 years during a normal water year.

Imported Water – significant efforts have been made to develop local supplies and, as a result, the demand for imported water is expected to decrease in the future. While the retail demand is projected to grow, the region is expected to need less imported water in normal water years. As shown in the following tables, MWDOC is expected to meet 100 percent demand through the year 2030 under a normal water year condition.

TABLE 40: Projected Normal Water Year Supply – AF/Y					
	2010	2015	2020	2025	2030/opt
Supply	4,853	4,903	4,953	4,998	4,998
% of Normal Year	102%	103%	104%	105%	105%

Section 7 Water Service Reliability

TABLE 41: Projected Normal Water Year Demand – AF/Y					
	2010	2015	2020	2025	2030/opt
Demand	4,853	4,903	4,953	4,998	4,998
% of year 2005	102%	103%	104%	105%	105%

TABLE 42: Projected Normal Year Supply and Demand Comparison – AF/Y					
	2010	2015	2020	2025	2030/opt
Supply totals	4,853	4,903	4,953	4,998	4,998
Demand totals	4,853	4,903	4,953	4,998	4,998
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

Projected Single-Dry-Year Supply and Demand Comparison

The water demands and supplies for MWDOC’s service area over the next 25 years were analyzed in the event a single-dry-year occurs, similar to the drought that occurred in Orange County in 1961.

Imported Water – as local supplies decrease during the single dry year, MWDOC relies on imported water to meet its demand. Metropolitan’s draft Regional Urban Water Management Plan, dated May 2005, describes how Metropolitan has created a diverse resource portfolio and aggressive conservation program to protect the reliability of the entire system. Metropolitan demonstrated in its plan that sufficient supplies can be reasonably relied upon to meet projected supplemental demands in the region during a dry year event. As a result, MWDOC is expected to fill in the supply gap to meet demand. During a dry year, imported water demands are expected to increase from 25 to 38 percent.

TABLE 43: Projected Single Dry Year Water Supply – AF/Y					
	2010	2015	2020	2025	2030/opt
Local Supply	2,225	2,225	2,225	2,225	2,225
Imported Supply	2,898	2,950	3,003	3,050	3,050
Supply Totals	5,123	5,175	5,228	5,275	5,275
% of projected normal	105.5%	105.5%	105.5%	105.5%	105.5%

*For projected normal use Table 40

TABLE 44: Projected Single Dry Year Water Demand – AF/Y					
	2010	2015	2020	2025	2030/opt
Demand	5,123	5,175	5,228	5,275	5,275
% of projected normal*	105.5%	105.5%	105.5%	105.5%	105.5%

*For projected normal use Table 41

Section 7 Water Service Reliability

TABLE 45: Projected Single Dry Year Supply and Demand Comparison – AF/Y					
	2010	2015	2020	2025	2030/opt
Supply totals	5,123	5,175	5,228	5,275	5,275
Demand totals	5,123	5,175	5,228	5,275	5,275
Difference (supply minus demand)	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

Tables 43, 44, and 45 compare the supply and demand for direct and indirect use in projected single dry years from 2010 to 2030. By expecting reliable supplemental supply from Metropolitan, MWDOC is projected to be 100 percent reliable during a single dry year condition.

Projected Multiple-Dry-Year Supply and Demand Comparison

The water demands and supplies for MWDOC's service area over the next 25 years were analyzed in the event a multiple dry year occurs, similar to the drought from 1959 to 1961.

Imported Water – during multiple dry years, MWDOC member agencies are expected to increase their imported demand to make up for the decrease in local supplies.

Again, by relying on Metropolitan for supplying imported demand during multiple dry years, MWDOC is able to demonstrate that the region will maintain 100 percent reliability during multiple dry years.

TABLE 46: Projected Supply During Multiple Dry Year Period Ending in 2010 – AF/Y			
Supply	2008	2009	2010
Normal			
Local Supply	200	1,294	2,225
Imported Supply	4,608	3,536	2,628
Supply Totals	4,608	4,830	4,853
Multiple Dry Years			
Local Supply	200	1,294	2,225
Imported Supply	4,930	3,715	2,898
Supply Totals	5,130	5,008	5,123
% of projected normal	106.7%	103.7%	105.5%

TABLE 47: Projected Demand Multiple Dry Year Period Ending in 2010 – AF/Y			
Demand	2008	2009	2010
Normal	4,808	4,830	4,853
Multiple Dry Year	5,130	5,003	5,123
% of projected normal	106.7%	103.7%	105.5%

Section 7 Water Service Reliability

TABLE 48: Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2010 –AF/Y

	2008	2009	2010
Supply totals	5,130	5,008	5,123
Demand totals	5,130	5,008	5,123
Difference (supply minus demand)	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

TABLE 49: Projected Supply During Multiple Dry Year Period Ending in 2015 – AF/Y

Supply	2013	2014	2015
Normal			
Local Supply	2,225	2,225	2,225
Imported Supply	2,658	2,668	2,678
Supply Totals	4,883	4,893	4,903
Multiple Dry Year			
Local Supply	2,225	2,225	2,225
Imported Supply	2,985	2,849	2,950
Supply Totals	5,210	5,074	5,175
% of projected normal	106.7%	103.7%	105.5%

TABLE 50: Projected Demand Multiple Dry Year Period Ending in 2015 – AF/Y

Demand	2013	2014	2015
Normal	4,883	4,893	4,903
Multiple Dry Year	5,210	5,074	5,175
% of projected normal	106.7%	103.7%	105.5%

TABLE 51: Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2015- AF/Y

	2013	2014	2015
Supply totals	5,210	5,074	5,175
Demand totals	5,210	5,074	5,175
Difference (supply minus demand)	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

Section 7 Water Service Reliability

TABLE 52: Projected Supply During Multiple Dry Year Period Ending in 2020- AF/Y			
Supply	2018	2019	2020
Normal			
Local Supply	2,225	2,225	2,225
Imported Supply	2,708	2,718	2,728
Supply Totals	4,933	4,943	4,953
Multiple Dry Year			
Local Supply	2,225	2,225	2,225
Imported Supply	3,039	2,901	3,003
Supply Totals	5,264	5,126	5,223
% of projected normal	106.7%	103.7%	105.5%

TABLE 53: Projected Demand Multiple Dry Year Period Ending in 2020 – AF/Y			
Demand	2018	2019	2020
Normal			
	4,933	4,943	4,943
Multiple Dry Year	5,264	5,126	5,228
% of projected normal	106.7%	103.7%	105.5%

TABLE 54: Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2020- AF/Y			
	2018	2019	2020
Supply totals	5,264	5,126	5,228
Demand totals	5,264	5,126	5,228
Difference (supply minus demand)	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

TABLE 55: Projected Supply During Multiple Dry Year Period Ending in 2025- AF/Y			
Supply	2023	2024	2025
Normal			
Local Supply	2,225	2,225	2,225
Imported Supply	2,758	2,768	2,773
Supply Totals	4,983	4,993	4,998
Multiple Dry Year			
Local Supply	2,225	2,225	2,225
Imported Supply	3,092	2,953	3,050
Supply Totals	5,317	5,178	5,275
% of projected normal	106.7%	103.7%	105.5%

Section 7 Water Service Reliability

TABLE 56: Projected Demand Multiple Dry Year Period Ending in 2025 – AF/Y			
Demand	2023	2024	2025
Normal	4,983	4,993	4,998
Multiple Dry Year	5,317	5,178	5,275
% of projected normal	106.7%	103.7%	105.5%

TABLE 57: Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2025- AF/Y			
	2023	2024	2025
Supply totals	5,317	5,178	5,275
Demand totals	5,317	5,178	5,275
Difference (supply minus demand)	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

TABLE 58: Projected Supply During Multiple Dry Year Period Ending in 2030 - AF/Y			
Supply	2028	2029	2030
Normal			
Local Supply	2,225	2,225	2,225
Imported Supply	2,773	2,773	2,773
Supply Totals	4,998	4,998	4,998
Multiple Dry Year			
Local Supply	2,225	2,225	2,225
Imported Supply	3,108	2,958	3,050
Supply Totals	5,333	5,183	5,275
% of projected normal	106.7%	103.7%	105.5%

TABLE 59: Projected Demand Multiple Dry Year Period Ending in 2030 – AF/Y			
Demand	2028	2029	2030
Normal	4,998	4,998	4,998
Multiple Dry Year	5,333	5,183	5,275
% of projected normal	106.7%	103.7%	105.5%

TABLE 60: Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2030 - AF/Y			
	2028	2029	2030
Supply totals	5,333	5,183	5,275
Demand totals	5,333	5,183	5,275
Difference (supply minus demand)	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

Section 8

Adoption and Implementation of UWMP

RESOLUTION NO. 691

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE LAGUNA BEACH COUNTY WATER DISTRICT OF ORANGE COUNTY, CALIFORNIA, APPROVING AND ADOPTING AN URBAN WATER MANAGEMENT PLAN UPDATE; AND REPEALING RESOLUTION 550.

WHEREAS, the 2005 Urban Water Management Plan Update for the Laguna Beach County Water District has been prepared in accordance with the requirements of Urban Water Management Planning Act, found at Water Code §10642; and

WHEREAS, pursuant to Water Code §10642, the Laguna Beach County Water District encourages 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; and

WHEREAS, pursuant to Water Code §10642, prior to adopting a plan, the Laguna Beach County Water District made the plan available for public inspection and the Water Commission of the Laguna Beach County Water District held a public hearing thereon on December 27, 2005; and

WHEREAS, prior to the hearing, notice of the time and place of hearing was published within the jurisdiction of the Laguna Beach County Water District pursuant to §6066 of the Government Code; and

WHEREAS, the plan was modified pursuant to recommendation made at the Public Hearing.

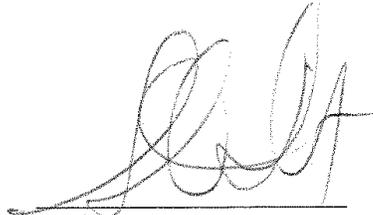
NOW, THEREFORE, BE IT RESOLVED, the Board of Directors of Laguna Beach County Water District, does hereby resolve and order as follows:

Section 1: That having duly considered the Urban Water Management Plan for this District, as submitted by General Manager/Secretary Renae M. Hinchey, and having held a public hearing, after publication of the notice of the time and place of hearing pursuant to Government Code §6066, said Board of Directors does hereby resolve and order that the Urban Water Management Plan Update for the Laguna Beach County Water District, dated December 2005, a copy of which is attached and marked "Exhibit A" be adopted and approved.

Section 2: That this Resolution Number 691 shall repeal Resolution 550, effective this date.

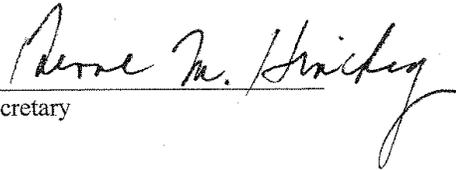
ADOPTED, SIGNED, AND APPROVED this 17th day of January, 2006.

Section 8
Adoption and Implementation of UWMP



President

ATTEST:



Secretary

Section 8
Adoption and Implementation of UWMP

CERTIFICATION

I, Renae M. Hinchey, Secretary of the Laguna Beach County Water District, of Orange County, California, do hereby certify that the foregoing Resolution No. 691 was duly adopted at a regular meeting of the Board of Directors of said District, held on the 17th day of January, 2006, by the following vote of Members of the Board:

AYES: Directors: - Dicterow, Iseman, Egly, Kinsman, Pearson-Schneider
NOES: Directors: - None
ABSENT: Directors: - None

And I further certify that Steve Dicterow as President, and Renae M. Hinchey, as Secretary, signed and approved said Resolution on the 17th day of January 2006.



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 Resolution No. 691 passed and adopted by the Board of Directors of said District at a regular meeting hereof held on January 17, 2006. In witness whereof, I have hereunto set by hand and affixed the official seal of said district this 17th day of January, 2006.

(District Seal)



Secretary, Laguna Beach County Water District

Established: AB 797, Klehs, 1983
Amended: AB 2661, Klehs, 1990
AB 11X, Filante, 1991
AB 1869, Speier, 1991
AB 892, Frazee, 1993
SB 1017, McCorquodale, 1994
AB 2853, Cortese, 1994
AB 1845, Cortese, 1995
SB 1011, Polanco, 1995
AB 2552, Bates, 2000
SB 553, Kelley, 2000
SB 610, Costa, 2001
AB 901, Daucher, 2001
SB 672, Machado, 2001
SB 1348, Brulte, 2002
SB 1384, Costa, 2002
SB 1518, Torlakson, 2002
AB 105, Wiggins, 2004
SB 318, Alpert, 2004

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING

CHAPTER 1. GENERAL DECLARATION AND POLICY

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

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

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

raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

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

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

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

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

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

CHAPTER 2. DEFINITIONS

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

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

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

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

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

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

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

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

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

CHAPTER 3. URBAN WATER MANAGEMENT PLANS

Article 1. General Provisions

10620.

- (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).
- (b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.
- (c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.
- (d)
 - (1) An urban water supplier may satisfy the requirements of this part by participation in area-wide, regional, watershed, or basin-wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.
 - (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.
- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.
- (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621.

- (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.
- (b) Every urban water supplier required to prepare a plan pursuant to this part shall notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.
- (c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

Article 2. Contents of Plans

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

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

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

Section 9 Appendices

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

- (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.
- (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as over-drafted or has projected that the basin will become over-drafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

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

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

- (1) An average water year.
- (2) A single dry water year.
- (3) Multiple dry water years.

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

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

(e)

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

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

Section 9 Appendices

- (2) The water use projections shall be in the same five-year increments described in subdivision (a).
- (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
- (1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:
 - (A) Water survey programs for single-family residential and multifamily residential customers.
 - (B) Residential plumbing retrofit.
 - (C) System water audits, leak detection, and repair.
 - (D) Metering with commodity rates for all new connections and retrofit of existing connections.
 - (E) Large landscape conservation programs and incentives.
 - (F) High-efficiency washing machine rebate programs.
 - (G) Public information programs.
 - (H) School education programs.
 - (I) Conservation programs for commercial, industrial, and institutional accounts.
 - (J) Wholesale agency programs.
 - (K) Conservation pricing.
 - (L) Water conservation coordinator.
 - (M) Water waste prohibition.
 - (N) Residential ultra-low-flush toilet replacement programs.
 - (2) A schedule of implementation for all water demand management measures proposed or described in the plan.
 - (3) A description of the methods if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
 - (4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
- (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
- (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
 - (2) Include a cost-benefit analysis, identifying total benefits and total costs.
 - (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
 - (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
- (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available

from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

- (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
- (j) Urban water suppliers that are members of the California Urban Water Conservation Council and submit annual reports to that council in accordance with the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated September 1991, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions (f) and (g).
- (k) Urban water suppliers that rely upon a wholesale agency for a source of water, shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c), including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

10631.5. The department shall take into consideration whether the urban water supplier is implementing or scheduled for implementation, the water demand management activities that the urban water supplier identified in its urban water management plan, pursuant to Section 10631, in evaluating applications for grants and loans made available pursuant to Section 79163. The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities.

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

- (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.
- (b) 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.
- (c) 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.
- (d) 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.
- (e) 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.
- (f) Penalties or charges for excessive use, where applicable.
- (g) 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.

- (h) A draft water shortage contingency resolution or ordinance.
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

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

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
- (b) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.
- (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
- (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
- (e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
- (f) 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 re-circulating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

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

Article 2.5. Water Service Reliability

10635.

- (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.
- (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.
- (c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.
- (d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

Article 3. Adoption and Implementation of Plans

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

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

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

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

A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

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

10644.

(a) An urban water supplier shall file with the department and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be filed with the department and any city or county within which the supplier provides water supplies within 30 days after adoption.

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

BOARD RESOLUTION

**A MODEL RESOLUTION ESTABLISHING
THE CRITERIA TO DECLARE A
WATER SHORTAGE EMERGENCY**

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Laguna Beach County Water District as follows:

PURSUANT to California Water Code Section 350 et seq., the Board has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Board finds, determines and declares as follows:

1. During 2005, the District served approximately 4,600 acre-feet per year (AFY) of water to District property owners and inhabitants;
2. The demand for water service by District inhabitants and property owners is not expected to lessen;
3. For the foregoing reasons, customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in the 2005 Urban Water Management Plan, Chapter 2-Water Supply Emergency Response, Section IV when the General Manager or his/her designee determines that production capacity has been reduced by 25 to 35 percent due to prolonged drought, contamination, natural disaster, loss of production well(s), major main break, prolonged power outage, or any other water supply emergency that limits the District's ability to provide adequate water service;

NOW, THEREFORE, BE IT RESOLVED that the District Board of Directors of the Laguna Beach County Water District hereby directs the General Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply for human consumption, sanitation, and fire protection requirements, until the District's water supply is deemed adequate. After the declaration of a water shortage emergency, the General Manager is directed to determine the appropriate Rationing Stage and implement the District's Water Shortage Emergency Response.

FURTHERMORE, the District shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA

IN AND FOR THE COUNTY OF ORANGE

- - -000- - -

E. E. CAMPBELL, et al.,
Plaintiffs

No. 28524

-vs-

THE IRVINE COMPANY, a
Corporation, et al.,
Defendants

J U D G M E N T

Signed and filed June 13, 1933.

This cause came regularly on for trial in the above entitled court on the 13th day of June, 1933, before the court sitting without a jury, a jury having been waived; the trial was had upon the complaint of the plaintiffs as amended and the answers of the defendants Laguna Beach County Water District, the City of Newport Beach, Fairview Farms Water Company, and the Newport Mesa Irrigation District, and the amended answer of the defendant, The Irvine Company, a corporation, the cross-complaint of defendant The Irvine Company having been dismissed in accordance with the written stipulation of the parties to this action filed herein; the parties hereto appearing and being represented herein by their respective attorneys of record; and evidence both oral and documentary having been presented by the parties in support of their respective rights, title and claims as set forth in the pleadings, and the cause having been argued and submitted to the court for decision, and formal findings of fact and conclusions of law having been waived by written stipulation of all of the parties to this action filed herein, and the court being fully advised in the premises and after due deliberation, now renders its judgment herein as follows:

2 1

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

Section 9 Appendices

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

range eleven (11) west; thence easterly one-half mile to center of said section seventeen (17); thence northerly one mile to the center of section eight (8); said township four (4) south, range eleven (11) west; thence easterly one mile to the center of section nine (9), said township four (4) south, range eleven (11) west; thence northerly one-half mile to the north one-quarter section corner of said section nine (9); thence easterly one-half mile to the southwest corner of fractional section three (3), said township four (4) south, range eleven (11) west; thence northerly to the northwest corner of said fractional section three (3); thence easterly three miles along township line to the southwest corner of section thirty-one (31), township three (3) south, range ten (10) west, San Bernardino base and meridian; thence northerly three-fourths of a mile along the westerly boundary of said section thirty-one (31), township three (3) south, range ten (10) west, to the center line of Commonwealth Avenue, of the City of Fullerton; thence easterly along the said center line of Commonwealth Avenue and the said center line extended easterly to an intersection with the range line between township eight (8) south and township nine (9) south, San Bernardino base and meridian; thence southerly seven-tenths of a mile along said range line to its intersection with the center line of the main canal of the Santa Ana Valley Irrigation Company, thence along said center line of canal to the southwest corner of Block 1 of Gray Tract, as shown on a map recorded in Book 4, page 548 of Miscellaneous Records of Los Angeles County, California; thence easterly following the center line of Santiago Boulevard to Santiago Creek; thence 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 recorded 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,

(3)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

Sixty-five, Eighty-three and One Hundred Sixty-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 line 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 A, 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. B. B. & M., to the Northwest corner of Block numbered 1 of said

9

THEY ARE TO BE CONSIDERED AS A PART 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 ^{in main part} ~~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.

5

IV.

1 That the plaintiff E. B. 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 N. 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. Nayer 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. B. & 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
 the Southeast Quarter (SE $\frac{1}{4}$) of Section Seven
 (7), Township Six (6) South, Range Ten (10)
 West, S. B. B. & M.

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

32 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

(6)

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 Northwestern 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.

15 BEGINNING therefrom the following parcels of
 16 said subdivision not now owned by said defendant,
 17 The Irvine Company:

18 The most westerly two acres of Lot 134, Block 7,
 19 Lot 131 Block 49; southeasterly half of Lot 118
 20 Block 8, Lots 116, 99 and 100 Block 9, Lots 66, 66,
 21 67, 80 and 81 Block 10, Lots 49, 50 and 64 Block 11
 22 and the northeasterly half of Block 11, the northerly
 23 quarter of Lot 44 and the southeasterly half of
 24 Lot 38 Block 45, all of Block 12, except the easterly
 25 5 acres of Lot 13 and the northerly one quarter of
 26 Lot 14, all of Block 13, the westerly five acres of
 27 Lot 340 and the northerly 10 acres of Lot 39, Block
 28 43, Tracts 232 recorded in Book 14 page 8 of Mis-
 29 cellaneous Maps, Records of Orange County, California,
 30 except Lots F-1, F-2, F-3, F-4, E-3, northwesterly
 31 one-half of E-4, Lots d-10, D-11 and the northwesterly
 32 one halves of C-10 and C-11 of said tract 232; the
 33 northeasterly sixty acres of Lot 178 Block 84, the
 34 northeasterly eighty two acres of Lot 183 and the
 35 southeasterly 368 feet strip of Lot 184 and Lot 185
 36 of Block 85, the southeasterly 66 acres of Lot 192,
 37 Block 86, Lot 254 Block 103, Lot 253 Block 104, the
 38 northerly five acres of the westerly one quarter of
 39 Lot 239 Block 105, the most southerly two acres
 40 Lot 242 Block 121, the northwesterly one half of Lot
 41 259 Block 123.

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



1 The Southwest Quarter (SW $\frac{1}{4}$); the Northeast
2 Quarter (NE $\frac{1}{4}$) and the Northwest Quarter (NW $\frac{1}{4}$)
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 351.47 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 1034.86 feet to an
19 intersection with the center line of Huntlinger
20 Street; thence north 88° 40' East along the center
21 line of said Huntlinger Street 1077.39 feet; thence
22 North 1° 15' West 1812.63 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 8° 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 Bolas, County of Orange, State of California, and
29 described as follows:
30 In the Rancho Los Bolas, 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 18 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 38.80 chains; thence South
38 7° West 21.48 chains; thence South 7° West 18.74
39 chains; thence West 21.88 chains to the East section
40 line.

(9)

1 place of beginning, containing about 143.97 acres.
2 Excepting and reserving therefrom the following described tract:
3 Commencing at the point where the south line of the
4 Northwest quarter of Section 8, Township 6 South,
5 Range 10 West, S. B. S. & M., intersects the eastern
6 boundary of the Rancho Los Bolsas; running thence
7 North 7° East along said boundary line 2625 feet;
8 thence South 88° 45' West 859 feet; thence South 81°
9 30' East 468 feet; thence South 2° West 635 feet; thence
10 South 26° West 367.3 feet; thence South 67° 30'
11 West 283 feet; thence South 43° 30' West 236 feet; thence
12 South 87° 48' West 697 feet; thence South 3° West
13 341 feet to the south line of the northwest quarter
14 of said Section 8; thence East 1258.5 feet to the
15 place of beginning containing 50.91 acres of land.

16 Parcel 4. All that certain land situated in the County of
17 Orange, State of California, described as follows:
18 Beginning at a point in the easterly line of the
19 County Road, running north and south through the
20 center of section 18, township 6 south, Range 10
21 West, which point is 220 feet southerly of the
22 northerly line of the southeast quarter of Section
23 18, Township 6 South, Range 10 West, S. B. S. & M.,
24 said distance being measured along the easterly line
25 of the aforesaid County road; thence easterly along
26 a line which is 220 feet southerly of and parallel
27 with the northerly line of the aforesaid southeast
28 quarter of Section 18, a distance of 495 feet to a
29 point; thence southerly along a line which is 495 feet
30 easterly of and parallel with the easterly line of the
31 aforesaid County Road, a distance of 440 feet to a
32 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.

That defendant FAIRVIEW FARMS WATER COMPANY, a corporation, is the owner of the following described tracts of land,
to-wit:

Parcel 1. Beginning at the Northwest corner of 5 acres of
land conveyed by H. D. Meyer to Newport Mesa
Irrigation District by deed recorded in Book 560,
Page 341 of Deeds, Records of Orange County, California,
and running thence East 587.23 feet to a

(10)

1 point; thence South 399.09 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 318 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 14 acres.

15
16 Parcel B. Beginning at the East quarter corner of Section
17 Eighteen (18), Township Six (6) South, Range Ten
18 (10) West, S. B. B. & M., thence South 89° 41' West
19 67.70 feet to a stake, the point of beginning; thence
20 South 89° 41' West 418.05 feet to a stake, said stake
21 being the Northwest corner of the 5 acre tract sold
22 to H. H. Cotton and L. T. Bradford by Henry D. Meyer;
23 thence South 0° 19' East 260.5 feet to a stake;
24 thence North 89° 41' East 418.05 feet to a stake;
25 thence North 0° 19' West 260.5 feet to the point
26 of beginning, containing 2.5 acres, more or less.

27
28 That defendant NEWPORT MEZA IRRIGATION DISTRICT is the
29 owner of the following described tracts of land, to-wit:

30 Commencing at the Southwest corner of a tract of
31 five acres conveyed to L. T. Bradford and H. H.
32 Cotton by deed recorded in Book 229, page 346 of
Deeds, records of said Orange County, and running
thence South 399.09 feet to a point; thence at
right angles East and parallel with the South line
of said five acre tract 500.05 feet to the Easterly
boundary line of the Rancho Los Bolinas; thence
North 20° 45' West along said line 62.84 feet to
station 85 of said Rancho; thence North 34° 15'
East 330 feet to Station 84 of said Rancho; thence
North 46° 30' East 87.12 feet to the Southeastern
corner of said five acre tract and thence West along
the South line of said tract 698.04 feet to the
point of beginning, estimated to contain five acres
of land.

Also, a portion of the Northeast Quarter of the
Southeast Quarter of Section Eighteen, Township Six
South, Range Ten West, S. B. B. & M., more particu-
larly described as follows: Beginning at the North-
west corner of a tract of five acres conveyed by E. D.
Meyer to Newport Meza Irrigation District by deed
dated June 2nd, 1920, recorded June 9th, 1920, in
Book 360, page 341 of Deeds, records of said Orange
County (being the five acre tract hereinabove de-
scribed) and running thence West 557.23 feet to a
point; thence South 399.09 feet to a point; thence
East 557.23 feet, more or less, to the Southwest
corner of the five acre tract above referred to;

(11)

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 200 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

(12)

1 produce, and more 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 7800 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 plane 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.
20

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 Rancho 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
plane 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 transport 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

(14)

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

(15)

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 X.

3.K/1a

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

(10)

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 XIII.

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 rigation 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.

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

1 sixty (60) acre feet each year, and said defendant Fairview
2 Farms Water Company, a corporation, has the right and is en-
3 titled to pump, take, divert, store and/or carry away from
4 the underground waters lying, being and percolating in and
5 through said Basin, for domestic and irrigation uses upon said
6 thirty-one (31) acres of land above described, 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 Farms
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
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

III.

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

XV.

1
2 That the subject matter and all the questions involved
3 in this action are of common and general interest to the many
4 owners of land and the inhabitants occupying lands within said
5 Santa Ana River Basin whose lands, by reason of their situation
6 in overlying said common water-bearing strata and continuous body
7 of percolating waters in said basin, are similarly situated to
8 the lands in said Basin owned by the parties to this action; that
9 said land owners and inhabitants are too numerous, and it is
10 impracticable, to bring them all before this court in this action,
11 and that by reason thereof this suit has been instituted, main-
12 tained and prosecuted by the parties hereto on behalf of them-
13 selves and of all other of said persons similarly situated within
14 said Santa Ana River Basin for said common object and purpose;
15 that this decree shall inure to the benefit of and shall be
16 binding upon each and all of the parties to this action, and each
17 and every owner of land similarly situated within said Santa Ana
18 River Basin.

XVI.

19
20 That each of the defendants, The Irvine Company, City
21 of Newport Beach and Laguna Beach County Water District, shall
22 install, and thereafter at all times maintain, a standard meter
23 or measuring device at a point on its pipeline maintained and used
24 for the transportation of water from said surplus percolating
25 waters in said basin to which each of said defendants is adjudged
26 to be entitled in this decree for the purpose of measuring all of
27 said water taken by each of said defendants for use outside of said
28 basin. Each of said defendants shall keep a daily record of all
29 water taken or diverted by it and carried through its distributing
30 system to points outside of said basin, and shall allow a repre-
31 sentative of the plaintiffs herein, to be hereafter designated by
32 said plaintiffs, to examine such record from time to time and,

(70)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

whenever desired, to make copies therefrom, and shall likewise allow said representative of said plaintiffs from time to time to enter upon its premises and examine all the means and instrumentalities used by it for making such records, and to verify the accuracy of the same by said representative making his own measurement of the water so taken and carried into the distributing system of the defendant whose records are being so examined or verified.

XVII.

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

DONE in open court this 13th day of June, 1933.

Sy O. K. Learlon
Judge of the Superior Court

Filed June 15 - 1933

Entered June 1933

JUN 15 1933
JUN 15 1933
JUN 15 1933