Lincoln Avenue Water Company

Final

2010 Urban Water Management Plan

June 2011

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The Water Division of ARCADIS

Lincoln Avenue Water Company

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2010 Urban Water Management Plan

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Acronyms Used in the Report

Act	Urban Water Management Planning Act
AF	acre-feet
AFY	acre-feet per year
Basin	Raymond Groundwater Basin
BDCP	Bay Delta Conservation Plan
BMP	Best Management Practice
Board	Metropolitan's Board of Directors
CDPH	California Department of Public Health
cfs	cubic feet per second
CII	Commercial Industrial Institutional
CIMIS	California Irrigation Management Information System
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DBPs	Disinfection Byproducts
DMM	Demand Management Measure
DWR	Department of Water Resources
ETo	Evapotranspiration
FMWD	Foothill Municipal Water District
GPCD	gallons per capita per day
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IRP	Integrated Resources Plan
IWA	International Water Association
JWPCP	Joint Water Pollution Control Plant
LACSD	Sanitation Districts of Los Angeles County
LAGWRP	Los Angeles/Glendale Water Reclamation Plant
LAWC	Lincoln Avenue Water Company
LRSP	Local, Reliable Water Supply Program
MAF	million acre-feet
MBR	membrane bioreactor
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
NDMA	N-nitrosodimethylamine
PPCPs	Pharmaceuticals and Personal Care Products
QSA	Quantification Settlement Agreement
RHNA	Regional Housing Needs Assessment
RUWMP	Regional Urban Water Management Plan

SBx7-7	Senate Bill x7-7
SCAG	Southern California Association of Governments
SDP	Seawater Desalination Program
SWP	State Water Project
TDS	Total Dissolved Solid
ULFT	Ultra-Low-Flow Toilet
UWMP	Urban Water Management Plan
WBIC	weather-base irrigation controller
WRP	water reclamation plant
WSAP	Water Supply Allocation Plan

Executive Summary

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

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP include Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. It stemmed from the Governor's goal to achieve a 20% statewide reduction in per capita water use by 2020 (20x2020). SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015.

Service Area and Facilities

LAWC provides water to a population of approximately 16,000 throughout its service area. LAWC receives its water from three main sources, the Raymond Groundwater Basin, surface water from Millard Canyon, and imported water from the Foothill Municipal Water District (FMWD). LAWC provides potable drinking water to its customers via two wells, an imported source, and a local surface water source and treatment facility.

Water Demand

Currently, the total water demand for the 16,126 people served by LAWC is approximately 2,319 acre-feet annually consisting of 1,818 acre-feet of imported water, and 501 acre-feet of local water.

LAWC has selected to comply with **Option 3** of the SBx7-7 compliance options. Under Compliance Option 3, LAWC's 2015 interim water use target is 148.3 GPCD and the 2020 final water use target is **141.6 GPCD**.

Water Sources and Supply Reliability

LAWC has three sources of water supply which include groundwater from the Monk Hill sub-basin of the Raymond Basin, local surface water from Millard Canyon, and FMWD imported water. As local production cannot supply 100 percent of the demand, LAWC supplements the remaining demand with imported water from Metropolitan via FMWD. From time to time, Lincoln will lease water from other local purveyors with available water rights. LAWC takes FMWD imported water in the non-peak months and shifts primary reliance to groundwater in the summer period. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035.

It is required that every urban water supplier assess the reliability to provide water service to its customers under normal, dry, and multiple dry water years. Metropolitan's 2010 RUWMP finds that Metropolitan is able to meet full service demands of its member agencies with existing supplies from 2015 through 2035 during normal years, single dry year, and multiple dry years. LAWC is therefore capable of meeting the water demands of its customers in normal, single dry, and multiple dry years between 2015 and 2035, as illustrated in Table 3-13, Table 3-14, and Table 3-15, respectively.

Future Water Supply Projects

FMWD, LAWC's wholesale provider has initiated a Local, Reliable Water Supply Program (LRWSP) to reduce dependence on imported water supplies through development of recycled water as well as increased storm water capture and recharge and water conservation throughout the service area. Recycled water supplies currently comprise 1 percent of the total water supply within the FMWD service area, which could benefit LAWC in the future. FMWD plans to develop recycled water through the construction of up to three satellite membrane bioreactor (MBR) plants as part of a Regional Water Recycling Project. Alternative means of bringing recycled water to the area are also being reviewed. Recycled water produced by these plants will be used to replace demands on potable supplies for use in greenbelt irrigation and groundwater recharge. Future recycled water development is in the planning stages currently, and the amount of additional local production is not known.

LAWC does not have opportunities to directly develop desalinated supplies. It does not border the ocean and cannot participate directly in ocean desalination. However, LAWC supports Metropolitan's Seawater Desalination Program (SDP), which provides incentives to Metropolitan's member agencies of up to $250 per acre-foot for the production of desalinated ocean water. Although LAWC is not able to directly

participate in seawater desalination, it participates indirectly by supporting Metropolitan's program.

1. Introduction

1.1. Urban Water Management Plan Requirements

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

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

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

Since its passage in 1983, several amendments have been added to the Act. The most recent changes affecting the 2010 UWMP included Senate Bill 7 as part of the Seventh Extraordinary Session (SBx7-7) and SB 1087. The Water Conservation Act of 2009 or SBx7-7 enacted in 2009 is the water conservation component of the Delta package. It stemmed from the Governor's vision to achieve a 20% statewide reduction in per capita water use by 2020. SBx7-7 requires each urban retail water supplier to develop urban water use targets to help meet the 20% goal by 2020 and an interim 10% goal by 2015. Urban retail water suppliers must include in their 2010 UWMPs the following information from its target-setting process:

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

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

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

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

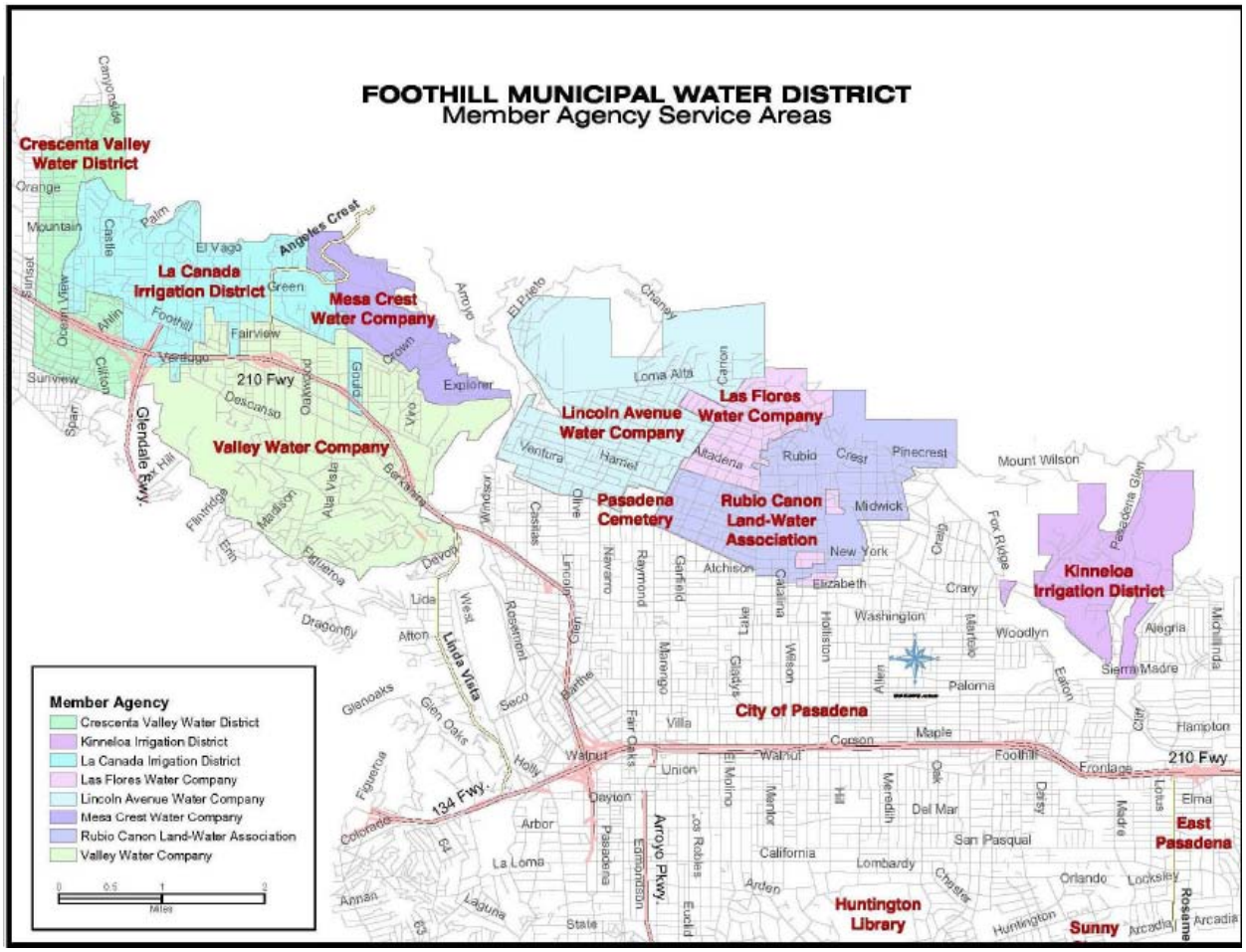

Figure 1-1: Regional Location of Urban Water Supplier

1.2. Agency Overview

LAWC is a mutual water company, a non-profit association chartered under the appropriate Sections of the California Corporation Code. It originated in the early 1870s under the name of the Millard Canyon Water Company. This mutual company was organized by ranchers to supply irrigation water to the area now know as Altadena. The water was obtained from tunnels and springs located in the canyons north of Altadena. In 1896 the LAWC was incorporated and took over the operation of the Millard Canyon Water Company. Since then the water system has gradually changed from irrigation to a domestic water system through the drilling of wells and the construction of a reservoir and distribution system. Today, the LAWC serves a population of approximately 16,000, and its sources of supply have expanded to include local groundwater from the Raymond Basin, local surface water, and imported water from FMWD.

As a mutual water company, LAWC's shareholders are its customers that are served by the distribution system. The General Manager oversees the company's operations and reports to a five member Board of Directors.

LAWC receives its water from three main sources, the Raymond Groundwater Basin, surface water from Millard Canyon, and imported water from the Foothill Municipal Water District (FMWD). FMWD is a member agency of the Metropolitan Water District of Southern California (Metropolitan).

1.3. Service Area and Facilities

1.3.1. LAWC's Service Area

The LAWC serves the northwest portion of Altadena, which is an unincorporated area of Los Angeles bordering Pasadena. LAWC's service area is located within the service area of Metropolitan, a regional water wholesaler, and the FMWD, the member agency of Metropolitan that distributes imported water to LAWC the surrounding foothill areas. LAWC is bounded on the south by the City of Pasadena, on the east by the Las Flores Water Company and the Rubio Cañon Land Water Association, and on the north by the San Gabriel Mountains.

1.3.2. LAWC's Water Facilities

LAWC provides potable drinking water to its customers via two wells, an imported source, and a local surface water source and treatment facility. The wells pump from the Raymond Groundwater Basin, which is LAWC's primary source of supply. The imported source water is obtained from the FMWD, a member agency of Metropolitan. Its surface water source is the Millard Canyon, and supplies from this source are treated at the LAWC's South Coulter Surface Water Treatment Plant.

2. Water Demand

2.1. Overview

Currently, the total water demand for the 16,126 people served by LAWC is approximately 2,319 acre-feet annually consisting of 1,818 acre-feet of imported water, and 501 acre-feet of local water.

The passage of SBx7-7 will increase efforts to reduce the use of potable supplies in the future. This new law requires all of California's retail urban water suppliers serving more than 3,000 AFY or 3,000 service connections to achieve a 20% reduction in demands (from a historical baseline) by 2020. Due to great water conservation efforts in the past decade, LAWC is on its way to meeting this requirement on its own.

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

2.2. Factors Affecting Demand

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

2.2.1. Climate Characteristics

Altadena has a Mediterranean climate. Summers are mild and dry, and winters are cool, with an annual average of 22 inches of precipitation. The region is subject to wide variations in annual precipitation, and also experiences periodic wild fires. The average evapotranspiration (ETo) is 54 inches per year which is twice times the annual average rainfall. This translates to a high demand for landscape irrigation. Moreover, a region with low rainfall like Southern California is also more prone to droughts. Average annual ETo, temperatures and rainfall are shown in Table 2-1.

Table 2-1: Climate Characteristics

	Standard Monthly Average ETo (inches) [1]	Annual Rainfall (inches) [2]	Average Temperature (˚F) [3]
Jan	1.90	4.60	53.3
Feb	2.33	4.79	54.2
Mar	3.65	3.57	55.7
Apr	4.91	1.80	56.3
May	6.07	0.43	62.6
Jun	6.93	0.17	66.0
Jul	7.71	0.04	71.7
Aug	7.24	0.11	73.0
Sep	5.34	0.43	71.5
Oct	3.99	0.81	64.3
Nov	2.43	2.02	60.7
Dec	1.95	3.15	55.2
Annual	**54.44**	**21.91**	**62.0**

[1] Average Evapotranspiration is an average value taken from station #133 (Glendale) and station #159 (Monrovia) provided by CIMIS.
[2] Data provided by Western Regional Climate Center from station 040144 (Altadena). Average from 1922-2010.
[3] Data provided by Western Regional Climate Center from station 040144 (Altadena). Average from 1922-2010.

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

2.2.2. Demographics

LAWC serves a population of 16,126. The population within LAWC's service area is expected to increase by 13 percent in the next 25 years, or 0.5 percent annually. Table 2-2 shows the population projections for the next 25 years based on the LAWC's analysis of number of service connections and average household size. Housing density is expected to remain relatively stable, and there are no significant parcels available for large scale development.

Table 2-2: Population – Current and Projected

	2010	2015	2020	2025	2030	2035-opt
Service Area Population	16,126	16,533	16,951	17,379	17,818	18,263

LAWC is located within an unincorporated area of Los Angeles known as Altadena. The median age of Altadena residents is 38 years, and the median household income is estimated at about $85,249 per year[1]. The average household population is 2.8 persons per dwelling unit.

2.3. Water Use by Customer Type

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

This section provides an overview of LAWC's water consumption by customer type in 2005 and 2010, as well as projections for 2015 to 2035. The customer classes are categorized as follows: single-family residential, multi-family residential, commercial/industrial/institutional (CII), dedicated landscape, and agriculture. Other water uses, including sales to other agencies and non-revenue water, are also discussed in this section.

2.3.1. Overview

LAWC has maintained approximately 4,463 customer connections to its potable water distribution system since 2005. LAWC is projecting a 1.8% increase in customer connections by the year 2035. All connections in LAWC are metered.

Approximately 87% of LAWC's water demand is residential. LAWC has only a small number of commercial accounts and no industrial water use within our district. Local schools and churches would qualify as institutional accounts. Commercial and institutional sectors consume approximately 13% of LAWC's total water supply. LAWC does not provide any sales to agriculture, nor other agencies, saline water intrusion barriers, groundwater recharge, or conjunctive use.

[1] 2007 American community Survey

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

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

Fiscal Year Ending	Number of Accounts by Water Use Sector					
	Single Family	Multi-Family	Commercial /Industrial	Institutional	Landscape	Total Accounts
2005	4,293		150			**4,443**
2010	4,312		151			**4,463**
2015	4,327		152			**4,479**
2020	4,342		153			**4,495**
2025	4,357		154			**4,511**
2030	4,372		155			**4,527**
2035	4,387		156			**4,543**

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

Fiscal Year Ending	Water Demand by Water Use Sectors (AFY)					
	Single Family	Multi-Family	Commercial /Industrial	Institutional	Landscape	Total Demand
2005	2,083		311			**2,395**
2010	2,018		301			**2,319**
2015	2,270		339			**2,609**
2020	2,327		348			**2,675**
2025	2,386		357			**2,743**
2030	2,446		366			**2,812**
2035	2,508		375			**2,883**

2.3.2. Residential

Residential water use accounts for the majority of LAWC's water demands at approximately 87% of total demand in the service area. Water consumption by the residential sector is projected to remain at about 87% through the 25-year planning horizon.

Due to the limited capability of our billing system, the single and multi-family accounts are grouped as residential accounts. The residential accounts consist of approximately 97 percent of our customers.

2.3.3. Non-Residential

In 2010 non-residential demand was approximately 13% of the overall demand and is expected to remain so through 2035. LAWC's service area consists of only a small number of commercial and governmental accounts, which are parks, schools, markets, and small businesses. Our largest water users are the parks.

2.3.4. Other Water Uses

2.3.4.1. Sales to Other Agencies

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

2.3.4.2. Non-Revenue Water

Non-revenue water is defined by the International Water Association (IWA) as the difference between distribution systems input volume (i.e. production) and billed authorized consumption. Non-revenue water consists of three components: unbilled authorized consumption (e.g. hydrant flushing, fire fighting, and blow-off water from well start-ups), real losses (e.g. leakage in mains and service lines), and apparent losses (unauthorized consumption and metering inaccuracies).

LAWC's non-revenue water accounts for about 7% percent of LAWC's total demand (Table 2-5).

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

Water Use	Fiscal Year Ending						
	2005	2010	2015	2020	2025	2030	2035
Saline Barriers							
Groundwater Recharge							
Conjunctive Use							
Raw Water							
Recycled Water							
Unaccounted-for System Losses	168	139	183	187	192	197	202
Total	**168**	**139**	**183**	**187**	**192**	**197**	**202**

2.4. SBx7-7 Requirements

2.4.1. Overview

SBx7-7, which became effective on February 3, 2010, is the water conservation component to the Delta legislative package. It seeks to implement Governor Schwarzenegger's 2008 water use reduction goals to achieve a 20% statewide reduction in urban per capita water use by December 31, 2020. As discussed above, the bill requires each urban retail water supplier to develop urban water use targets to help meet the 20%

goal by 2020 and an interim 10% goal by 2015. The bill establishes methods for urban retail water suppliers to determine targets to help achieve water reduction targets. The retail water supplier must select one of the four compliance options. The retail agency may choose to comply to SBx7-7 as an individual or as a region in collaboration with other water suppliers. Under the regional compliance option, the retail water supplier still has to report the water use target for its individual service area. The bill also includes reporting requirements in the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirement will not be eligible for water related grant, or loan, from the state on and after July 16, 2016. However, if an agency that is not in compliance documents a plan and obtains funding approval to come into compliance then could become eligible for grants or loans.

2.4.2. SBx7-7 Compliance Options

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

- *Option 1* requires a simple 20% reduction from the baseline by 2020 and 10 percent by 2015.
- *Option 2* employs a budget-based approach by requiring an agency to achieve a performance standard based on three metrics
    - Residential indoor water use of 55 GPCD
    - Landscape water use commiserate with Model Landscape Ordinance
    - 10 percent reduction in baseline CII water use
- *Option 3* is to achieve 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan.
- *Option 4* requires the subtraction of Total Savings from the Base GPCD:
    - Total Savings includes indoor residential savings, meter savings, CII savings, and landscape and water loss savings.

LAWC's Compliance Option Selection

LAWC has selected to comply with **Option 3**.

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

2.4.3. Baseline Water Use

The first step to calculating an agency's water use target is to determine its base daily per capita water use (baseline water use). This baseline water use is essentially the agency's

gross water use divided by its service area population, reported in gallons per capita per day (GPCD). The baseline water use is calculated as a continuous 10-year average during a period which ends no earlier than December 31, 2004 and no later than December 31, 2010. Agencies for which recycled water made up 10 percent or more of 2008 retail water delivery can use up to a 15-year average for the calculation.

Recycled water use represents less than 10% of LAWC's retail delivery in 2008; therefore, a 10-year instead of a 15-year rolling average was calculated. LAWC's baseline water use is **155.0 GPCD**, which was obtained from the 10-year period July 1, 1999 to June 30, 2009.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for LAWC as well as the service area population and annual water use data from which the base daily per capita water use was derived. Data provided in Table 2-6 was used to calculate the continuous 10-year average baseline GPCD. Moreover, regardless of the compliance method adopted by LAWC, it will need to meet the minimum water use target of 5% reduction from a five-year baseline as calculated in Table 2-7.

Table 2-6: Base Daily per Capita Water Use – 10-year range

Highest Available Baseline [1]	Beginning	Ending
10 Year Avg	July 1, 1999	June 30, 2009

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2000	15,218	2,188,722	144
2001	15,294	2,181,595	143
2002	15,371	2,414,333	157
2003	15,448	2,420,957	157
2004	15,526	2,505,358	161
2005	15,604	2,452,319	157
2006	15,682	2,615,976	167
2007	15,761	2,702,921	171
2008	15,840	2,430,608	153
2009	15,920	2,225,857	140
		Base Daily Per Capita Water Use:	155.0

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

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

Highest Available Baseline [2]	Beginning	Ending
5 Year Avg	July 1, 2003	June 30, 2008

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
2004	15,526	2,505,358	161
2005	15,604	2,452,319	157
2006	15,682	2,615,976	167
2007	15,761	2,702,921	171
2008	15,840	2,430,608	153
		Base Daily Per Capita Water Use:	162.1

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

2.4.4. SBx7-7 Water Use Targets

Under Compliance Option 3, LAWC has chosen to achieve 95% of the South Coast hydrologic region target. Under this option, LAWC's 2015 interim water use target is 148.3 GPCD, and the 2020 final water use target is **141.6 GPCD** as summarized in Table 2-8.

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

	Baseline	2015 Target	2020 Target
Option 3 - 95% of State Hydrologic Region Targets	155.0	148.3	141.6

2.4.5. Water Use Reduction Plan

In order to meet the SBx7-7 targets, LAWC will continue to implement the water use efficiency measures described in Section 4 of this UWMP and continue to participate in water use efficiency programs offered by its regional wholesaler, FWMD and Metropolitan. FMWD's conservation measures are detailed in FMWD's UWMP Section 4, and Metropolitan's conservation measures detailed in Metropolitan's 2010 RUWMP Section 3.4.

Additionally, Metropolitan in collaboration with its member agencies is in the process of developing a Long Term Conservation Plan,[2] which seeks an aggressive water use efficiency target in order to achieve a 20% reduction in per capita water use by 2020 for the entire Metropolitan service area.

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

Metropolitan Long Term Conservation Plan

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

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

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

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

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

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

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

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

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

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

Periodic Review

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

2.5. Demand Projections

2.5.1. 25 Year Projections

One of the main objectives of this UWMP is to provide LAWC's future water demand outlook. As discussed above, currently, LAWC's total annual water demand is 2,319 acre-feet, which is met through a combination of 22% local supplies, and 78% imported water as illustrated in Table 2-9.

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

Water Supply Sources	Fiscal Year Ending					
	2010	2015	2020	2025	2030	2035-opt
FMWD (Imported Treated Full Service (non-int.))	1,818	1,934	2,000	2,068	2,137	2,208
Local Water	501	675	675	675	675	675
Total	**2,319**	**2,609**	**2,675**	**2,743**	**2,812**	**2,883**

Table 2-10 shows the projected demands for imported water that LAWC has provided to FMWD its wholesale agency illustrating the amount of water LAWC wishes to purchase from FMWD for the next 25 years.

Table 2-10: LAWC's Demand Projections Provided to Wholesale Suppliers (AFY)

Wholesaler	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
FMWD	1,934	2,000	2,068	2,137	2,208

2.5.2. Low Income Household Projections

One significant change to the UWMP Act since 2005 is the requirement that retail water suppliers develop water use projections for "low-income" households at the single-family and multifamily level. These projections assist retail suppliers with compliance with Section 65589.7 of the Government Code, which requires suppliers to grant a priority for the provision of service to low income households. Consistent with this Code section, a

low-income household is defined as a household earning 80% of the County of Los Angeles' median income or less.

In order to identify the low income housing projections within its service area, DWR[3] recommends that retail suppliers rely on the Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of governments (COG), in coordination with the California Department of Housing and Community Development.

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

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

LAWC serves the northwest portion of Altadena, an unincorporated area in Los Angeles County. Based on the 2007 Final Regional Housing Need Allocation Plan[5], the projected housing need for low and very low income households (hereafter referred to as low-income) in unincorporated area of Los Angeles County are 15.9% and 25.2%, respectively or 41.1% combined.

Therefore, from inference, it is estimated that approximately 41.1% of the projected residential water demands within LAWC's service area will be for housing needed for low income households as shown in Table 2-11. (Note: Residential water demand represents approximately 87% of total water demand. Breakdown of demand for single versus multi-family customers is not available. However, the majority of residential customers are single-family residents.)

[3] California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)
[4] Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)
[5] Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

Table 2-11: Projected Water Demands for Housing Needed for Low Income Households (AFY)

Water Use Sector	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Retail Demand	2,609	2,675	2,743	2,812	2,883
Total Residential Demand	2,270	2,327	2,386	2,446	2,508
Total Low Income Households Demand	***933***	***956***	***981***	***1,005***	***1,031***

3. Water Sources and Supply Reliability

3.1. Overview

LAWC has three sources of water supply which include groundwater from the Monk Hill sub-basin of the Raymond Basin, local surface water from Millard Canyon, and FMWD imported water. As local production cannot supply 100 percent of the demand, LAWC supplements the remaining demand with imported water from Metropolitan via FMWD. From time to time, Lincoln will lease water from other local purveyors with available water rights. LAWC takes FMWD imported water in the non-peak months and shifts primary reliance to groundwater in the summer period.

LAWC works together with two primary agencies – Metropolitan and FMWD to insure a safe and high quality water supply, which will continue to serve the community in periods of drought and shortage. The sources of imported water supplies include the Colorado River and the State Water Project (SWP). Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full-service demands (non-interruptible agricultural and replenishment supplies) at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The imported water supply numbers shown here represent only the amount of supplies projected to meet demands and not the full supply capacity.

Figure 3-1 provides a projection of LAWC's water supply sources for the next 25 years.

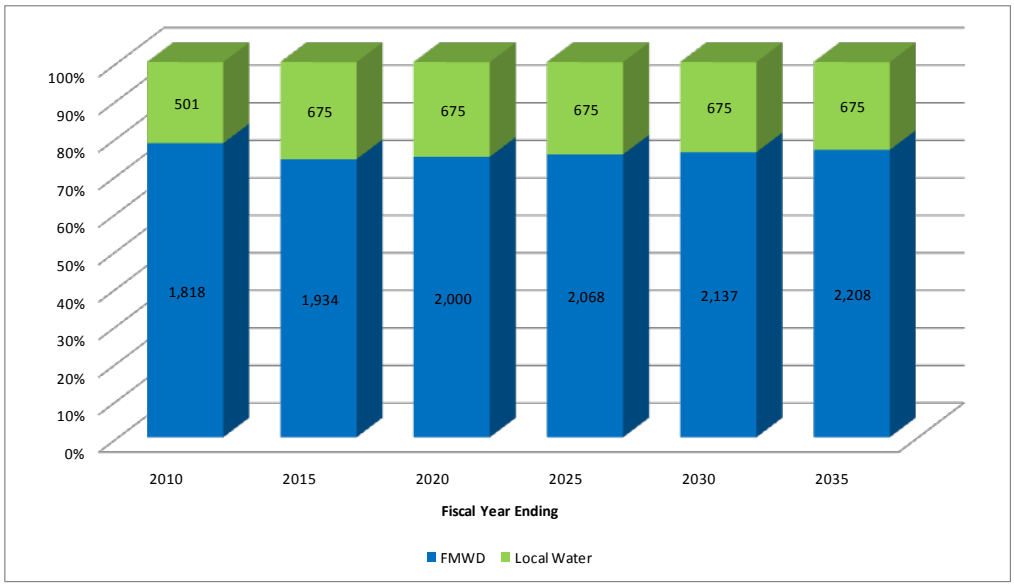

Figure 3-1: Current and Projected Water Supplies (AFY)

3.2. Imported Water

LAWC currently relies on 1,818 AFY of imported water wholesaled by Metropolitan through FMWD to supplement local water. Imported water represents approximately 78% of LAWC's total water supply. Metropolitan's principal sources of water originate from two sources - the Colorado River via the Colorado Aqueduct and the Lake Oroville watershed in Northern California through the State Water Project (SWP). This water is treated at Metropolitan's Weymouth Treatment Plant. In 2009, the Weymouth Treatment Plant received a blend of 25% Colorado River and 75% State Project water.

Metropolitan's Upper Feeder is tapped by FMWD in the vicinity of Seco Street and Rosemont Avenue in the City of Pasadena. Water flows from Metropolitan's system into FMWD's Arroyo Seco Gravity Main which traverses in a northerly direction in the vicinity of Rosemont Avenue and terminates at FMWD's Main Pumping Plant located near Rosemont Avenue and Washington Boulevard in the City of Pasadena.

3.2.1. Metropolitan's 2010 Regional Urban Water Management Plan

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

Colorado River Supplies

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

State Water Project Supplies

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

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

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

Storage

Storage is a major component of Metropolitan's dry year resource management strategy. Metropolitan's likelihood of having adequate supply capability to meet projected demands, without implementing its Water Supply Allocation Plan (WSAP), is dependent on its storage resources. In developing the supply capabilities for the 2010 RUWMP, Metropolitan assumed a simulated median storage level going into each of five-year increments based on the balances of supplies and demands.

Supply Reliability

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

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

AverageYear
Supply Capability[1] and Projected Demands
Average of 1922-2004 Hydrologies
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	1,550,000	1,629,000	1,763,000	1,733,000	1,734,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,507,000	1,529,000	1,472,000	1,432,000	1,429,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**3,485,000**	**3,810,000**	**4,089,000**	**3,947,000**	**3,814,000**
Demands					
Firm Demands of Metropolitan	1,826,000	1,660,000	1,705,000	1,769,000	1,826,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,006,000**	**1,933,000**	**1,985,000**	**2,049,000**	**2,106,000**
Surplus	**1,479,000**	**1,877,000**	**2,104,000**	**1,898,000**	**1,708,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	382,000	383,000	715,000	715,000	715,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**588,000**	**689,000**	**1,051,000**	**1,051,000**	**1,051,000**
Potential Surplus	**2,067,000**	**2,566,000**	**3,155,000**	**2,949,000**	**2,759,000**

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

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

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

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

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

Source: Metropolitan's 2010 RUWMP

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

Single Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1977 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	685,000	931,000	1,076,000	964,000	830,000
California Aqueduct[2]	522,000	601,000	651,000	609,000	610,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,416,000	1,824,000	1,669,000	1,419,000	1,419,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,457,000**	**2,782,000**	**2,977,000**	**2,823,000**	**2,690,000**
Demands					
Firm Demands of Metropolitan	1,991,000	1,889,000	1,921,000	1,974,000	2,039,000
IID-SDCWA Transfers and Canal Linings	180,000	273,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,171,000**	**2,162,000**	**2,201,000**	**2,254,000**	**2,319,000**
Surplus	**286,000**	**620,000**	**776,000**	**569,000**	**371,000**
Programs Under Development					
In-Region Storage and Programs	206,000	306,000	336,000	336,000	336,000
California Aqueduct	556,000	556,000	700,000	700,000	700,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**762,000**	**862,000**	**1,036,000**	**1,036,000**	**1,036,000**
Potential Surplus	**1,048,000**	**1,482,000**	**1,812,000**	**1,605,000**	**1,407,000**

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

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

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

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

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

Source: Metropolitan's 2010 RUWMP

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

Multiple Dry-Year
Supply Capability[1] and Projected Demands
Repeat of 1990-1992 Hydrology
(acre-feet per year)

Forecast Year	2015	2020	2025	2030	2035
Current Programs					
In-Region Storage and Programs	246,000	373,000	435,000	398,000	353,000
California Aqueduct[2]	752,000	794,000	835,000	811,000	812,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	1,318,000	1,600,000	1,417,000	1,416,000	1,416,000
Aqueduct Capacity Limit[4]	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*	*1,250,000*
Colorado River Aqueduct Capability	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Capability of Current Programs	**2,248,000**	**2,417,000**	**2,520,000**	**2,459,000**	**2,415,000**
Demands					
Firm Demands of Metropolitan	2,056,000	1,947,000	2,003,000	2,059,000	2,119,000
IID-SDCWA Transfers and Canal Linings	180,000	241,000	280,000	280,000	280,000
Total Demands on Metropolitan[5]	**2,236,000**	**2,188,000**	**2,283,000**	**2,339,000**	**2,399,000**
Surplus	**12,000**	**229,000**	**237,000**	**120,000**	**16,000**
Programs Under Development					
In-Region Storage and Programs	162,000	280,000	314,000	336,000	336,000
California Aqueduct	242,000	273,000	419,000	419,000	419,000
Colorado River Aqueduct					
Colorado River Aqueduct Supply[3]	187,000	187,000	187,000	182,000	182,000
Aqueduct Capacity Limit[4]	*0*	*0*	*0*	*0*	*0*
Colorado River Aqueduct Capability	0	0	0	0	0
Capability of Proposed Programs	**404,000**	**553,000**	**733,000**	**755,000**	**755,000**
Potential Surplus	**416,000**	**782,000**	**970,000**	**875,000**	**771,000**

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

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

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

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

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

Source: Metropolitan's 2010 RUWMP

3.2.2. LAWC's Imported Water Supply Projections

Based on Metropolitan's supply projections that it will be able to meet full service demands under all three hydrologic scenarios, FMWD, LAWC's wholesale supplier, infers that it would also be able to meet the demands of its retail agencies under these conditions.

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

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

Wholesaler Sources	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
FMWD	1,934	2,000	2,068	2,137	2,208

3.3. Local Supplies

Local potable water is produced from wells and treated runoff from the mountains. LAWC is fortunate in that it has a relatively large allowable amount of groundwater that it may pump from its adjudicated source, the Raymond Groundwater Basin (Basin), along with surface water from Millard Canyon representing about 22% of its total demand.

3.3.1. Raymond Groundwater Basin

The Raymond Basin is located in the northwest part of the San Gabriel Valley, in eastern Los Angeles County, and was considered a part of the San Gabriel Valley Groundwater Basin (4-13) in Bulletin 118-75 and Bulletin 118-80. The Raymond Basin includes the water-bearing sediments bounded by the contact with consolidated basement rocks of the San Gabriel Mountains on the north and the San Rafael Hills on the southwest. The west boundary is delineated by a drainage divide at Pickens Canyon Wash and the southeast boundary is the Raymond fault. Annual precipitation averages in the basin range from about 19 inches in the valley to 25 inches in upland areas. The average precipitation over the basin is about 21 inches.

Natural recharge to the Basin is mainly from direct percolation of precipitation and percolation of ephemeral streamflow from the San Gabriel Mountains in the north. The principal streams bringing surface inflow are the Arroyo Seco, Eaton Creek and Santa

Anita Creek. Some stream runoff is diverted into spreading grounds, and some is impounded behind small dams allowing the water to infiltrate and contribute to groundwater recharge of the basin. An unknown amount of underflow enters the Basin from the San Gabriel Mountains through fracture systems.

Water levels in the Raymond Basin have varied through time but are managed to stay within limits of a long-time mean elevation. Hydrographs show the range of fluctuation in water level over the last 20 years to be about 50 to 60 feet in the northwest, 80 feet in the central, 30 feet in the south, and 140 feet in the northeast portions of the basin. Most hydrographs show 1999 water levels within about 30 feet of their long-time mean elevations.

The total storage capacity of the Basin was calculated at 1,450,000 acre-feet applying specific yield values ranging from 3 to 35 percent to all aquifer material from 20 feet below the surface to the base of sediments. This value is based on a surface area of 26,200 acres, an average thickness of about 550 feet, and an average specific yield of about 10 percent. No estimates of available storage have been made recently in the Basin, although a 1971 DWR study estimated the available stored water to be 1 million AF in 1970, leaving about 450,000 AF of storage space available.

3.3.2. Basin Adjudication

The Raymond Basin was adjudicated in 1944. This adjudication established a management that utilizes a fixed safe-yield operation.

LAWC's groundwater allocation is 567 AF per year. This is supplemented, under the judgment, by a spread credit of 80% of the measured water that is not input to the Ames Treatment Plant and flows into the spreading basins. All water that flows into the spreading basin is metered with an allowable extraction based on Raymond Basin Management Board percolation calculation. Between 2005 and 2009, LAWC received an average annual spreading credit of 166 AF.

LAWC has also entered into water lease agreements with the City of Pasadena. LAWC pumps and treats Pasadena's water rights then delivers the water to their system through 2 interconnections. LAWC in turn keeps a portion of the lease water.

Table 3-5: Groundwater Pump Rights (AFY)

Basin Name	Pumping Right (AFY)
Raymond Basin	567
Total	**567**

Table 3-6 shows LAWC's recent groundwater production from the Basin in the past 5 years from 2005 to 2009.

Table 3-6: Amount of Groundwater Pumped in the Past 5 Years (AFY) – Including Lease Water

Basin Name(s)	Fiscal Year Ending				
	2005	2006	2007	2008	2009
Raymond Basin GW	1,538	1,553	2,301	1,911	1,770
% of Total Water Supply	**56%**	**53%**	**76%**	**70%**	**71%**

Table 3-7 shows the amount of groundwater projected to be pumped from the Basin by LAWC in the next 25 years.

Table 3-7: Amount of Groundwater Projected to be Pumped (AFY) - Not Including Lease Water

Basin Name(s)	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
Raymond Basin GW	286	460	460	460	460
% of Total Water Supply	**12%**	**18%**	**17%**	**17%**	**16%**

3.4. Surface Water

In addition to its local groundwater supplies, LAWC has a decreed right to surface water from Millard and El Prieto Canyons. El Prieto Canyon does not provide enough surface water to be economically feasible to treat. However, Millard Canyon provides much more water and its annual runoff is more stable. LAWC installed an automated state of the art Surface Water Treatment Plant in 1996 to treat surface water from Millard Canyon located in the San Gabriel Mountains. This two-stage pressure filtration plant reduces the Company's dependency on imported water. The plant went on-line in the fall of 1997 and it is capable of treating up to 700 gallons per minute dependent upon rainfall. Table 3-8 below presents the amount of surface water supplied by LAWC for the past five years. The Surface Water Treatment Plant is offline indefinitely and will not provide any future production.

Table 3-8: Amount of Surface Water Delivered in the Past 5 Years (AFY)

Source Name(s)	Fiscal Year Ending				
	2005	2006	2007	2008	2009
Millard Canyon	537	306	39	95	101

3.5. Supply Reliability

3.5.1. Overview

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

Metropolitan's 2010 Integrated Water Resources Plan (IRP) update describes the core water resource strategy that will be used to meet full service demands at the retail level under all foreseeable hydrologic conditions from 2015 through 2035. The foundation of Metropolitan's resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements. FMWD, LAWC's wholesale supplier, is reliant on Metropolitan for all of its imported water. With the addition of planned supplies under development, Metropolitan's 2010 RUWMP finds that Metropolitan will be able to meet full-service demands from 2015 through 2035, even under a repeat of the worst drought. Table 3-9 shows the reliability of the wholesaler's supply for single dry year and multiple dry year scenarios.

Table 3-9: Wholesaler Supply Reliability - % of Normal AFY

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

In addition to meeting full service demands from 2015 through 2035, Metropolitan projects reserve and replenishment supplies to refill system storage. FMWD's 2010 UWMP states that it will meet full-service demands to its customers from 2015 through

2035. Table 3-10 shows the basis of water year data used to predict drought supply availability.

Table 3-10: Basis of Water Year Data

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

3.5.2. Factors Contributing to Reliability

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

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

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

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

Climate Change – Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning even more challenging. The areas of concern for California include the reduction in

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

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt, however, that climatic factors would have more of an impact than the others. Climatic conditions have been projected based on historical patterns; however severe pattern changes may occur in the future. Table 3-11 shows the factors resulting in inconsistency of supply.

Table 3-11: Factors Resulting in Inconsistency of Supply

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

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

3.5.2.1. Water Quality

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

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

While unforeseeable water quality issues could alter reliability, Metropolitan's current strategies ensure the deliverability of high quality water.

Groundwater **-** LAWC's water system is and has been in compliance with all CDPH water quality standards. Groundwater quality does not impact water supply.

Table 3-12 shows the impact in acre-feet per year that water quality would have on supply.

Table 3-12: Water Quality – Current and Projected Water Supply Impacts (AFY)

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

3.5.3. Normal-Year Reliability Comparison

LAWC has entitlements and/or written contracts to receive imported water from Metropolitan via the regional distribution system. Although pipeline capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water supplies assumed in this section are available to the LAWC from existing water transmission facilities. Table 3-13 shows supply and demand under normal year conditions. Water supplies are projected to be available from Metropolitan; however, it is not included here since projected supplies meet projected demands.

Table 3-13: Projected Normal Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	**2,609**	**2,675**	**2,743**	**2,812**	**2,883**
Local Water	675	675	675	675	675
Imported	1,934	2,000	2,068	2,137	2,208
Total Supply	2,609	2,675	2,743	2,812	2,883

3.5.4. Single Dry-Year Reliability Comparison

LAWC has documented that its available supplies are 100% reliable for single dry year demands from 2015 through 2035 with a demand increase of 10.4% using FY 2006-07 as the single dry year. Table 3-14 compiles supply and demand projections for a single dry water year. The available imported supply is greater than shown; however, it is not included because all demands are met.

Table 3-14: Projected Single-Dry Year Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	**2,880**	**2,953**	**3,028**	**3,104**	**3,183**
Local Water	675	675	675	675	675
Imported	2,205	2,278	2,353	2,429	2,508
Total Supply	2,880	2,953	3,028	3,104	3,183

3.5.5. Multiple Dry-Year Reliability Comparison

LAWC is capable of providing their customers all their demands with significant reserves in multiple dry years from 2015 through 2035 with a demand increase of 10.4% using FY 1998-99 as the first multiple dry year, 8.3% using FY 1999-00 as the second multiple dry year, and 0% using FY 2000-01 as the third multiple dry year. This is true even if the demand projections are increased by a large margin. Table 3-15 shows supply and demand projections under multiple dry year conditions.

Table 3-15: Projected Multiple Dry Year Period Supply and Demand (AFY)

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
First Year Supply	**Total Demand**	**2,880**	**2,953**	**3,028**	**3,104**	**3,183**
	Local Water	675	675	675	675	675
	Imported	2,205	2,278	2,353	2,429	2,508
	Total Supply	2,880	2,953	3,028	3,104	3,183
Second Year Supply	**Total Demand**	**2,826**	**2,897**	**2,971**	**3,045**	**3,122**
	Local Water	675	675	675	675	675
	Imported	2,151	2,222	2,296	2,370	2,447
	Total Supply	2,826	2,897	2,971	3,045	3,122
Third Year Supply	**Total Demand**	**2,609**	**2,675**	**2,743**	**2,812**	**2,883**
	Local Water	675	675	675	675	675
	Imported	1,934	2,000	2,068	2,137	2,208
	Total Supply	2,609	2,675	2,743	2,812	2,883

4. Demand Management Measures

4.1. Overview

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

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

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

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

4.2. Water Use Efficiency Programs

As Signatory to the Urban MOU, LAWC has committed to use good-faith efforts to implement the 14 cost-effective BMPs. LAWC has implemented and is actively participating in many water conservation activities. A Water Conservation Ordinance was adopted by LAWC Board in 2009.

As a member agency of FMWD, LAWC actively participates in various Metropolitan residential and CII rebate programs, as well as school and public education and outreach programs, and other programs administered by FMWD. FMWD implements many of the urban water conservation BMPs on behalf of its member agencies. FMWD's 2010 UWMP should be referred to for a detailed discussion of each regional BMP program.

LAWC works cooperatively with FMWD for technical and financial support needed to facilitate meeting the terms of the MOU.

Table 4-1 provides an overview of LAWC's DMM program status.

Table 4-1: Urban Supplier's Demand Management Measures Overview

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

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

LAWC provides a water audit to residential and commercial/governmental customers on an average of 4 per week. LAWC advertises this service through bill messages. LAWC will continue to implement this BMP by providing this service free of charge to its customers. LAWC has no method to evaluate the effectiveness of this DMM but believes that this program is in the public's interest.

LAWC also participates in various FMWD/Metropolitan programs aimed at increasing landscape water use efficiency for residential customers including rebate programs which provide financial incentives for residential customers to purchase weather-base irrigation controller (WBIC), rotating nozzles, and replace turf grass with synthetic turf. These devices have the potential to save 37 gallons per day per residence for WBIC, 3.6 gallons per day per rotating nozzle, and 0.125 gallons per day per square foot of turf grass replaced.

Between 2004 and 2010, 1 WBIC rebate was given out to LAWC residential customers representing a life time water savings of 0.4 AF.

4.2.2. DMM 2: Residential Plumbing Retrofit

LAWC offers low-flow showerheads, aerators and toilet tank leak detection tablets to its customers at all times. Additionally, LAWC through FMWD/Metropolitan offered rebates for ultra low-flush toilet (ULFT). Between 2004 and 2009, a total of 36 ULFTs were distributed under this program to single-family and multi-family homes within LAWC's service area representing a cumulative life time water savings of 6.51 acre-feet. The high efficiency toilet (HET) rebate program has since replaced the ULFT program as discussed under Section 4.2.14 DMM 14.

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

LAWC conducts water audits and leak detection and repair on a daily and monthly basis.

The distribution system is constantly being upgraded and repaired. Our trained staff surveys the system during the daily inspection and maintenance schedule.

LAWC monitors all water meters on a monthly basis. Stuck or faulty meters are detected and changed immediately. LAWC continues to upgrade meters monthly to reduce un-accounted for water.

4.2.4. DMM 4: Metering with Commodity Rates

LAWC has a 4 Tier Water Rate Structure. Each account is allotted units in each tier.

LAWC meters all of the accounts by volume of use and standby charge.

LAWC will continue to install and read meters on all new and existing services, and will continue to conduct its meter replacement program.

4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives

LAWC consists of only 5 large landscapes which are parks, a cemetery, and a newly developed gated community. LAWC offers water audit by bill messages. LAWC will continue to implement this DMM by annual review of customers' water use, and by offering on-site follow-up evaluations to customers whose total water use exceeds their total annual water budget upon request. Landscapes that are upgraded based on survey recommendations could result in a 15% reduction in water demand.

In addition, LAWC supports large landscape conservation through FMWD/Metropolitan's regional programs including:

Save Water Save A Buck Rebate Program – As a member agency of FMWD, LAWC takes part in the Save Water Save a Buck Rebate Program which offers financial

incentives to CII customers who purchase approved weather-based irrigation controllers and rotating nozzles.

Synthetic Turf Rebate Program – LAWC continued participation in FMWD/Metropolitan synthetic turf rebate program.

California Friendly Landscape Training – On behalf of its member agencies, FMWD support Metropolitan's California Friendly Landscape Training, which provides education to residential homeowners and professional landscape contractors on a variety of landscape water efficiency practices they can employ.

In addition, LAWC takes advantage of regional and local efforts which target and market to large landscape properties including bill inserts and direct marketing efforts.

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

LAWC participates in the SoCal Water Smart residential rebate program offered by FMWD/Metropolitan. This program offers financial incentives to single-family and multifamily residential customers through the form of a rebate. Residents in the FMWD service area are eligible to receive a $135 rebate when they purchase a new High Efficiency Clothes Washer (HECW). Rebates are available on a first-come, first-served basis, while funds last. Participants must be willing to allow an inspection of the installed machine for verification of program compliance. Machines must have a water factor of 4.0 or less. Depending on use, these machines can save 10,000 gallons of water per year. Participants are encouraged to contact their local gas and/or electric utility since additional rebates may be available. Between 2004 and 2010, LAWC has given out 104 high-efficiency washing machine rebates to its customers. This equates to a water savings of 9.7 acre-feet to date.

4.2.7. DMM 7: Public Information Programs

In concert with FMWD, LAWC provides literature, brochures, posters, videos, etc., to the public. FMWD maintains a library of water resource education conservation videos for loan to individuals and local organizations. FMWD provides speakers to various groups upon request.

LAWC will continue to provide public information services and materials to remind the public about water and other resource issues.

Table 4-2 shows past, current, and planned public information programs within the FMWD's service area from 2006-2015.

Table 4-2: Public Information Programs

Actual	2006	2007	2008	2009	2010
Paid Advertising	No	No	No	Yes	Yes
Public Service Announcement	No	No	No	No	No
Bill Inserts/Newsletters/Brochures	Yes	Yes	Yes	Yes	Yes
Bill Showing Water Usage in Comparison to Previous Year's Usage *	No	No	No	No	No
Demonstration Gardens	Yes	Yes	Yes	Yes	Yes
Special Events, Media Events	No	Yes	Yes	Yes	Yes
Speaker's Bureau	No	No	No	Yes	Yes
Program to Coordinate with Other Government Agencies, Industry and Public Interest Groups and Media	No	Yes	Yes	Yes	Yes
Actual Expenditures ($)	$850	$1,640	$4,340	$19,248	$26,711

Planned	2011	2012	2013	2014	2015
Paid Advertising	Yes	Yes	Yes	Yes	Yes
Public Service Announcement	No	No	No	No	No
Bill Inserts/Newsletters/Brochures	Yes	Yes	Yes	Yes	Yes
Bill Showing Water Usage in Comparison to Previous Year's Usage	No	No	No	No	No
Demonstration Gardens	Yes	Yes	Yes	Yes	Yes
Special Events, Media Events	Yes	Yes	Yes	Yes	Yes
Speaker's Bureau	Yes	Yes	Yes	Yes	Yes
Program to Coordinate with Other Government Agencies, Industry and Public Interest Groups and Media	Yes	Yes	Yes	Yes	Yes
Planned Expenditures ($)	$25,000[6]	$25,000	$25,000	$25,000	$25,000

[6] $24,950 budget is inclusive of all outreach programs

4.2.8. DMM 8: School Education Programs

FMWD implements this DMM on the behalf of its member agencies. FMWD makes information/literature available to local school districts for utilization in local curriculum. FMWD also supports Metropolitan's extensive in-class education program for specific grade levels. FMWD has spoken and is available to speak at local schools. FMWD has also sponsored a local high school in the annual Solar Cup competition held by Metropolitan, where students build water crafts operated by solar power and have competitions at one of Metropolitan's reservoirs.

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

LAWC has only a small number of commercial accounts and no industrial water use within our district. Local schools and churches would qualify as institutional accounts. In 1999, LAWC, through FMWD, implemented an agreement with Metropolitan for participation in a Commercial-Industrial-Institutional (CII) retrofit incentive project. This conservation credits program is designed to assist local water agency commercial customers in conserving water supplies.

Currently, LAWC offers financial incentives under the Save Water Save A Buck Rebate Program which offers rebates for various water efficient devices to CII customers.

Save Water Save a Buck – This program began in 2002 and offers rebates to assist commercial, industrial, and institutional customers in replacing high-flow plumbing fixtures with low-flow fixtures. Rebates are available only on those devices listed in Table 4-3 below and must replace higher water use devices. Installation of devices is the responsibility of each participant. Participants may purchase and install as many of the water saving devices as are applicable to their site.

Table 4-3: Retrofit Devices and Rebate Amounts Available Under Save Water Save a Buck Program

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

4.2.10. DMM 10: Wholesale Agency Programs

LAWC is a retail water agency. Therefore, the DMM does not apply. LAWC is a member agency of FMWD. FMWD provides financial incentives or equivalent resources, as appropriate and beneficial to distributing retail agencies, to advance water conservation efforts and effectiveness.

4.2.11. DMM 11: Conservation Pricing

LAWC has a 4 Tier Water Rate Structure. This tier rate system promotes conservation by offering our lowest rate to customers who use 7 billing units per month or less.

4.2.12. DMM 12: Water Conservation Coordinator

LAWC has designated a staff member as a water conservation coordinator. This is not a full-time position but time is devoted to coordination and oversight of conservation programs.

4.2.13. DMM 13: Water Waste Prohibition

On October 8, 2007, the Los Angeles Board of Supervisor approved Ordinance No. 2008-00052U to promote water conservation in the county's unincorporated areas (Appendix C). This ordinance applies to LAWC's service boundaries. The ordinance prohibits certain activities regarding landscape irrigation, washing of sidewalks and driveways, washing of vehicles, filling and washing decorative fountains and similar structures, and serving of water at restaurants/hotels.

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

LAWC, in concert with FMWD and Metropolitan, has an agreement for participation in a Residential ULFT Retrofit and a CII Retrofit Incentive Project that lasted through May 2010. FMWD, through Metropolitan, currently offers rebates for HETs (1.28 gallons per flush) for both residential and CII customers. The ULFT portion of this program concluded in June 2009.

Between 2004 and 2010, 36 ULFTs and 42 HETs have been installed within LAWC's service area representing a combined water savings of 10 acre-feet to date.

5. Water Supplies Contingency Plan

5.1. Overview

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

5.2. Shortage Actions

Metropolitan

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

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

In addition, in preparation for the possibility of being unable to the meet "firm demands" (non-interruptible supplies) of its member agencies, in February 2008, Metropolitan's Board of Directors (Board) adopted the Water Supply Allocation Plan (WSAP), which was subsequently updated in June 2009.

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

Metropolitan's WSAP was developed in consideration of the principles and guidelines described in Metropolitan's 1999 Water Surplus and Drought Management Plan

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

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

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

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

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

In order to implement the WSAP, the Metropolitan Board makes a determination on the level of the regional shortage, based on specific criteria, in April each year. If it is determined allocations are necessary, they go into effect in July for that year and remain for a 12-month period, although the schedule is at the discretion of Metropolitan's Board.

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

Foothill Municipal Water District

The plan mirrors Metropolitan's plan with three exceptions. The first exception is that, since Foothill does not take delivery of any Interim Agricultural Program water, reference to those deliveries has been deleted.

The second exception is the adjustment for conservation credits. In Metropolitan's plan, an adjustment is made for demand hardening due to both active conservation and plumbing-code based conservation. This adjustment is calculated through an accounting model using estimates of various conservation factors. Metropolitan is unable to calculate this adjustment to the sub-agency level. Foothill does not have this type of model, and it would be expensive to create one. As a solution, the rebates that Foothill has provided to agencies in 2004, 2005 and 2006 are used as the basis for the adjustment. Foothill's conservation credit is allocated to agencies based on the proportion of conservation credits each agency received in comparison to the total in 2004, 2005 and 2006.

The third exception is because of the way the water is allocated, without a further adjustment, total water allocated to Foothill's member agencies will never match the total water allocated to Foothill. Thus, an adjustment has been added to prorate the difference between the amount allocated to Foothill by Metropolitan and the initial allocation by Foothill.

Additionally, Foothill will reconcile over use and under use of member agency allocations at the same time that Metropolitan does, typically at the end of every 12 months. Any allocation that is under used by agencies will be pooled together in one pot to be distributed to those agencies that over use their allocation. The agencies taking any of that pooled water will be charged the regular Foothill Tier 1 or Tier 2 rate for having taken the water plus 50% of Metropolitan's penalty rate. Any penalties assessed would go into the Water Resource and Conservation Fund. Once the pooled water is used, agencies will pay the Foothill Tier 1 or Tier 2 rate for taking the water plus 100% of the Metropolitan penalty rate.

Supply Allocation Formula Elements

The following are the elements of the allocation formula:

Base Period – A three-year average of historical water use utilizing calendar years 2004, 2005 and 2006 will be used. Water use is divided into three components: total retail demand, locally produced water and imported water.

Growth Adjustment – Retail demands are adjusted for growth between the base period and the time of allocation based on county level estimates of average annual growth in

population. Agencies have an option to use weighted average population and job growth instead based on an appeal process to Metropolitan.

Local Supply Adjustment – Gains and losses in local supply from the base period used and the time of allocation would be made if approved by Metropolitan.

Extraordinary Increases in Local Supply – These increases are previously unscheduled water transfers or groundwater overproduction. Only a portion of these increases would count in the base period local production. This portion would be tied to the Regional Shortage Level and is calculated in such a manner to ensure that agencies are not discouraged from producing or developing these extraordinary increases.

Conservation Savings – An adjustment is made for demand hardening due to active conservation based on rebates provided by Foothill in 2004, 2005 and 2006. The conservation credit Foothill receives is allocated to agencies based on the proportion of conservation credits each agency received in comparison to the total in 2004, 2005 and 2006.

Conservation Rate Structure – This plan defines a conservation rate structure as one in which there is at least two tiers of volumetric water rates with a price differential between the top and bottom tiers of at least 10 percent. Agencies may receive .5% of an adjustment on the appropriate portion of the base period retail demand by submitting documentation showing proof of this rate structure and the amount of retail demand covered by the rate structure. Foothill will submit the documentation to Metropolitan. Once Metropolitan approves the adjustment, Foothill will pass it through to the appropriate retail agency.

Regional Shortage Percentage – This is the percentage of shortage between supplies and demands and will be declared by Metropolitan's board.

Wholesale Minimum Allocation – This is the first step in the formula and provides the minimum imported water allocation. It is set at one and a half times the Regional Shortage Percentage, meaning no agency can be allocated imported water deeper than one and a half times the Regional Shortage Percentage. For example, if the Regional Shortage Percentage is 20%, then no agency would receive an imported water allocation greater than a 30% reduction in imported water demands.

Retail Impact Adjustment Maximum – This adjustment occurs when a Regional Shortage is greater than 10%. It is the maximum additional allocation an agency may receive based on impacts to retail customers. Those agencies with less local supplies would receive a higher adjustment than those agencies with more local supplies. This adjustment's maximum percentage is one-half of the Regional Shortage Percentage. For

example, if the Regional Shortage Percentage is 20%, then no agency would receive an adjustment greater than 10% of its dependence of imported water.

Total FMWD Allocation – A preliminary allocation is provided to agencies based on calculations that mirror Metropolitan's plan (except for conservation as described above). Without a further adjustment, total water allocated to Foothill's member agencies will never match the total water allocated to Foothill. Thus, an adjustment has been added to prorate the difference between the amount allocated to Foothill by Metropolitan and the initial allocation by Foothill.

Penalty Rates – Member agency allocations would be enforced through a penalty rate structure. It is recommended that this penalty rate structure mirror Metropolitan's ascending penalty rate block structure. This structure provides a lower penalty for minor over use of allocations, and a higher penalty for major over use of allocations.

Conservation Plan Ordinance

The FMWD Board of Directors adopted Water Conservation Plan Ordinance No. 772-0409 on DATE. Ordinance No. 772-0409 establishes a comprehensive staged water conservation program that will encourage reduced water consumption within the FMWD through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the FMWD. Along with permanent water conservation requirements, the FMWD's Water Conservation Plan consists of the following five stages found in Table 5-1 to respond to a reduction in potable water available to the FMWD for distribution to its customers. Stage 1 conservation requirements are in effect at all times unless a mandatory conservation stage has been implemented by the Board of Directors.

Lincoln Avenue Water Company

As the water purveyor, LAWC must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure that this goal is met.

Rationing stages may be triggered by a shortage in one water source or a combination of sources. LAWC's potable water sources are groundwater, local surface, and imported. Rationing stages may be triggered by a supply shortage or by contamination in one source or a combination of sources. Because shortages overlap Stages, triggers automatically implement the more restrictive Stage.

On March 9, 1992, the LAWC Board of Directors adopted a Water Shortage Contingency Plan to better utilize the available water supplies and to preserve public health, safety, and general welfare.

On October 7, 2008, the Los Angeles County Board of Supervisors approved Ordinance No. 2008-00052U to promote conservation in unincorporated areas of the County and limits or prohibits certain water uses.

LAWC has also adopted a Voluntary Water Use Efficiency Ordinance in July 2008, which utilizes a number of water conservation measures to achieve a 10% reduction goal in their service area.

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

Stage No.	Water Supply Conditions	% Shortage
1 – Normal Water Conservation	Foothill can meet all Member Agency Demands. Voluntary water conservation applies.	0%
2 – Increased Voluntary Conservation	Some supplies have been impacted and consumers should increase efforts to conserve.	0%
3 – Extraordinary Conservation	Extraordinary Conservation. Metropolitan Water District of Southern California is withdrawing water from most of its storage programs to meet demands. Extraordinary conservation is called for from consumers.	0%
4 - Allocation	Metropolitan has implemented its allocation plan to its member agencies thus supplies are limited.	Up to 50%
5 - Critical	Water supplies are only available for health and safety needs.	50% or greater

5.3. Three-Year Minimum Water Supply

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

Section 135 of the Metropolitan Water District Act declares that a member agency has the right to invoke its “preferential right” to water, which grants each member agency a preferential right to purchase a percentage of Metropolitan’s available supplies based on specified, cumulative financial contributions to Metropolitan. Each year, Metropolitan calculates and distributes each member agency’s percentage of preferential rights.

However, since Metropolitan's creation in 1927, no member agency has ever invoked these rights as a means of acquiring limited supplies from Metropolitan.

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

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

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

A review of projected SWP allocations from the DWR's State Water Project Delivery Reliability Report 2009 (2009 SWP Reliability Report) was made to estimate a range of conservative supply assumptions regarding the availability of SWP supplies. The 2009 SWP Reliability Report provides estimates of the current (2009) and future (2029) SWP delivery reliability and incorporates regulatory requirements for SWP and CVP operations in accordance with USFWS and NMFS biological opinions. Estimates of future reliability also reflect potential impacts of climate change and sea level rise.

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

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

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

Table 5-2: Metropolitan Shortage Conditions

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

Based on the analysis above, Metropolitan would be able to meet firm demands under the driest three-year hydrologic scenario using the recent water management actions described above without re-implementing mandatory water use restrictions on its member agencies. Given the assumed absence of mandatory restrictions, the estimated minimum imported water supplies available to FMWD from Metropolitan is assumed to be equal to Metropolitan's estimate of demand for firm supplies for FMWD, which Metropolitan uses when considering whether to impose mandatory restrictions. Thus, the estimate of the minimum imported supplies available to FMWD is 10,090 AF.

FMWD has also adopted a shortage allocation plan and accompanying allocation model that estimates firm demands on FMWD. Assuming FMWD would not be imposing

mandatory restrictions if Metropolitan is not, the estimate of firms demands in FMWD's allocation model has been used to estimate the minimum imported supplies available to each of FMWD's member agencies for 2011-13. Thus, the estimate of the minimum imported supplies available to LAWC is 2,918 AF[7].

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

Metropolitan projects reliability for full service demands through the year 2035. Based on the FMWD Water Supply Allocation Plan, the LAWC is expected to fully meet demands for the next three years assuming Metropolitan and FMWD are not in shortage, and zero allocations are imposed for Imported Supplies. Normal year supplies are based on the Base Period supply in the FMWD Water Supply Allocation Plan, which is the average of the last three non-shortage calendar years 2004, 2005, and 2006. The Three Year Estimated Minimum Water Supply is listed in Table 5-3.

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

Source	Normal	2011	2012	2013
Imported Supply	1,332	2,918	2,918	2,918
Local Supplies	2,076	561	561	561
Total	*3,408*	*3,479*	*3,479*	*3,479*

5.4. Catastrophic Supply Interruption

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

[7] FMWD Water Shortage Allocation model (2009)

Metropolitan

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

Lincoln Avenue Water Company

LAWC has developed an Emergency Preparedness and Disaster Response Plan to ensure the most effective use of all LAWC resources for the benefit and protection of facilities and employees, in addition to the preservation of a reliable water supply for LAWC and its customers.

Auxiliary Generator – LAWC has a 375 kW portable auxiliary generator that can be hooked up at all pump stations.

Emergency Water Interconnections – LAWC has a total of 4 emergency water interconnections; 3 with the City of Pasadena and 1 interconnection with the Las Flores Water Company to provide mutual aid.

Conjunctive Use Program – LAWC participates in storage programs in the Raymond Basin. The water is stored primarily through the in-lieu process; using imported water instead of pumping water out of the groundwater basin.

Preparation Actions for possible catastrophes are listed in Table 5-4.

Table 5-4: Preparation Actions for Catastrophe

Possible Catastrophe	Preparation Actions
Regional Power Outage	• Emergency Preparedness and Disaster Response Plan • Portable Auxiliary Generator • Emergency Water Interconnections • Conjunctive Use Program
Earthquake	
Supply Contamination	
Terrorist Act which Interrupts Service	
Other(s)	

5.5. Prohibitions, Penalties and Consumption Reduction Methods

Prohibitions

The FMWD Water Conservation Plan Ordinance No. 772-0409 lists water conservation requirements which shall take effect upon implementation by the FMWD Board of Directors. Combined with LAWC's Voluntary Water Use Efficiency Ordinance, these prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement the LAWC's Water Quality regulations and urban runoff reduction efforts, and enable implementation of the LAWC's Water Shortage Contingency Measures. Prohibitions include, but are not limited to: restrictions on outdoor watering, washing of vehicles, food preparation establishments, repairing of leaks and other malfunctions, swimming pools, decorative water features, construction activities, and water service provisions which can be found in Table 5-5.

Table 5-5: Mandatory Prohibitions

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Leaks from any facility both inside and outside of a customer's premises must be repaired within seventy-two hours after the customer is notified of, or discovers the leak.	At All Times
All new plumbing fixtures installed within the FMWD service area must conform to the following requirements: • Toilets shall use less than 1.6 gallons per flush. • Showerheads shall flow at less than 2.5 gallons per minute. • Non-residential lavatory faucets shall be metering or self-closing. • Urinals shall use not more than 1.5 gallons per flush.	At All Times
Where recycled water is available and appropriate, the use of potable water for irrigation purposes shall be considered a waste of potable water. Upon written notice from the FMWD General Manager that recycled water is available and appropriate for use, the customer shall have 60 days to commence the use of recycled water.	At All Times
Potable water shall not be used for construction activities such as compaction and dust control when recycled water is available and appropriate.	At All Times

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
As used in this paragraph, "available" also means the cost of required recycled water, when added to the cost of required recycled water conveyance facilities, is less than or equal to the cost of an equivalent amount of potable water priced at 150% of regular potable water rates, plus the cost of necessary potable water conveyance facilities. Both potable and non-potable water for construction purposes including but not limited to de-brushing of vacant land, compaction of fills and pads, trench backfill and other construction uses, shall be used in an efficient manner which will not result in runoff.	
No irrigation of new or existing parks, median strips, landscaped public areas or landscaped areas, lawns, or gardens surrounding single-family homes, condominiums, townhouses, apartments, and industrial parks shall occur in such a way as to waste water. The rate and extent of application of water shall be controlled by the consumer so as to eliminate runoff or overspray from the irrigated areas.	At All Times
Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 9:00 a.m. and 5:00 p.m. Pacific Standard Time on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the purpose of adjusting or repairing an irrigation system.	At All Times
Watering or irrigating of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device not continuously attended is limited to no more than ten (10) minutes watering per day per station. This subsection does not apply to landscape irrigation systems using only very low-flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard.	At All Times
Washing down hard or paved surfaces, including	At All Times

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume high-pressure water broom.	
Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.	At All Times
Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This subsection does not apply to any commercial car washing facility or commercial service station; where health, safety and welfare of the public is contingent upon frequent vehicle cleaning, such as garbage trucks and vehicles which transport food and perishables.	At All Times
Eating or drinking establishments, including but not limited to a restaurant, hotel, cafe, cafeteria, bar, or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.	At All Times
Commercial lodging establishments are requested to post notices informing their guests about the FMWD's water conservation policy and urging guests to conserve water.	At All Times
Hotels, motels and other commercial lodging establishments must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each bathroom using clear and easily understood language.	At All Times
Food preparation establishments, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.	At All Times

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
No watering, sprinkling or irrigating shall take place in any landscaped or vegetated areas on days when the wind is blowing causing overspray, and on days when it is raining.	At All Times
The use of potable water from fire hydrants shall be limited to firefighting related activities or other activities immediately necessary to maintain the health, safety, and welfare of the residents of the FMWD.	At All Times
Installation of single pass cooling systems is prohibited in buildings requesting new water service.	Stage 2
Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.	Stage 2
All commercial conveyor car wash systems must have installed operational re-circulating water systems, or must have secured a waiver of this requirement from LAWC.	Stage 2
Outdoor water use is limited to odd or even days, based on ending number of customer address.	Stage 2
Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to three days per week on Tuesdays, Thursdays and Saturdays. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than two days per week on Tuesdays and Saturdays. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for the express purpose of adjusting or repairing an irrigation system.	Stage 3
Watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to two days per week on Tuesdays and Saturdays. This provision does not apply to landscape irrigation zones that exclusively use very low flow	Stage 4

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
drip type irrigation systems when no emitter produces more than two (2) gallons of water per hour. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for the express purpose of adjusting or repairing an irrigation system.	
All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by the local water purveyor unless other arrangements are made with LAWC.	Stage 4
Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under this plan.	Stage 4
Using water to wash or clean a vehicle, including but not limited to, any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, by high pressure/low volume wash systems, or at a commercial car washing facility that utilizes a re-circulating water system to capture or reuse water.	Stage 4
No new potable water service will be provided, no new temporary meters or permanent meters will be provided, and no statements of immediate ability to serve or provide potable water service (such as, will-serve letters, certificates, or letters of availability) will be issued, except under the following circumstances: • A valid, unexpired building permit has been issued for the project; or • The project is necessary to protect the public health, safety, and welfare; or • The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new	Stage 5

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
water meter(s) to the satisfaction of the local water purveyor	
The FMWD will suspend consideration of annexations to its service area. This subsection does not apply to boundary corrections and annexations that will not result in any increased use of water.	Stage 5
Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited. Any waivers to this restriction must be obtained from the LAWC.	Stage 5
All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within twenty four (24) hours of notification by the local water purveyor unless other arrangements are made with the LAWC.	Stage 5

Consumption Reduction Methods

Methods to reduce the use of potable water exist in all Water Shortage Levels are listed in Table 5-6.

Table 5-6: Consumption Reduction Methods

Consumption Reduction Methods	Stage When Method Takes Effect
Stage 1 Conservation Measures	1
Stage 2 Conservation Measures	2
Stage 3 Conservation Measures	3
Stage 4 Conservation Measures	4
Stage 5 Conservation Measures	4

Penalties

Any customer who violates provisions of the Water Conservation Plan Ordinance by either excess use of water or by specific violation of one or more of the applicable water use restrictions for a particular mandatory conservation stage may be cited by the LAWC and may be subject to written notices, surcharges, fines, flow restrictions, service disconnection, and/or service termination which are detailed in Table 5-7.

Table 5-7: Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
$100 Fine	Willful First Violation
$500 Fine	Willful Second and Subsequent Violations

5.6. Impacts to Revenue

LAWC is a private mutually owned water company and is a non-profit organization. The Company's water rates were structured to allow for operations and capital improvement expenditures.

In the event that water usage demand increases, more imported water may need to be purchased. The imported water rate has been increasing steadily and may require us to increase our water rates in order offset the difference.

In the event that water usage demand decreases, capital improvement projects may be minimal in order maintain current operations or water rates would be increase to offset the expenses. Such measures are listed in Tables 5-8 and 5-9.

Table 5-8: Proposed Measures to Overcome Revenue Impacts

Name of Measures
Rate Adjustment

Table 5-9: Proposed Measures to Overcome Expenditure Impacts

Name of Measures
Minimize Capital Improvement Projects

5.7. Reduction Measuring Mechanism

Under normal water supply conditions, potable water production figures are recorded daily. Totals are available daily to management. Totals are reported monthly to the Board of Directors in the monthly production and sales records report. Such measures are listed in Table 5-10.

Table 5-10: Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type of Data Expected
Daily Records	Potable Water Production Figures
Monthly Production and Sales Records Reports	Total Water Consumption

6. Recycled Water

6.1. Agency Coordination

Cost-effective opportunities for using recycled water are limited due to the lack of large users or large irrigated areas. In addition, there is presently no nearby source of such recycled water supply. This potential is continually assessed by FMWD and Metropolitan.

Table 6-1: Participating Agencies

Participating Agencies	Participated
Water Agencies	FMWD, Metropolitan
Wastewater Agencies	LACSD

6.2. Wastewater Description and Disposal

LAWC does not provide wastewater services. Rather, the areas it serves rely on the Sanitation Districts of Los Angeles County (LACSD) for wastewater treatment and disposal and the Los Angeles/Glendale Water Reclamation Plant (LAGWRP). The County Sanitation Districts, which provide wastewater services within the FMWD service area, are Districts 16 (Pasadena), 17 (Altadena), 28 (the area of La Cañada Flintridge surrounding the La Cañada Country Club), and 34 (the majority remainder of La Cañada Flintridge).

In fiscal year 2007-08, the LACSD operated 11 wastewater treatment facilities, 10 of which are classified as water reclamation plants (WRPs). These facilities serve approximately five million people in 78 cities and unincorporated county areas within Los Angeles County. Effluent quality from the WRPs ranges from undisinfected secondary to coagulated, filtered, disinfected tertiary. During the fiscal year, LACSD facilities produced an average of 478.59 million gallons per day (MGD), or 536,278 acre-feet per year (AFY) of effluent. Of the total effluent produced, 172.22 MGD (192,983 AFY) were recycled water suitable for reuse. The amount recycled is 36.0% of the total amount of effluent produced, a decrease of 1.6% from the preceding fiscal year. Water reclamation capacity at the 10 Districts' facilities is now 251.8 MGD (282,154 AFY).

The remaining 306.36 MGD (343,296 AFY) was effluent discharged to the ocean from LACSD's Joint Water Pollution Control Plant (JWPCP) in the City of Carson.[8]

6.3. Current Recycled Water Uses

There are currently no recycled water uses within LAWC's service area.

6.4. Potential Recycled Water Uses

FMWD, LAWC's wholesale provider has initiated a Local, Reliable Water Supply Program (LRWSP) to reduce dependence on imported water supplies through development of recycled water as well as increased storm water capture and recharge and water conservation throughout the service area. Recycled water supplies currently comprise 1 percent of the total water supply within the FMWD service area, which could benefit LAWC in the future. FMWD plans to develop recycled water through the construction of up to three satellite membrane bioreactor (MBR) plants as part of a Regional Water Recycling Project. Alternative means of bringing recycled water to the area are also being reviewed. Recycled water produced by these plants will be used to replace demands on potable supplies for use in greenbelt irrigation and groundwater recharge. Future recycled water development is in the planning stages currently, and the amount of additional local production is not known.

Table 6-4 compares the recycled water use projections from LAWC's 2005 UWMP with the actual 2010 recycled water use.

Table 6-2: Recycled Water Uses – 2005 Projections compared with 2010 Actual (AFY)

User Type	2005 Projection for 2010	2010 Actual Use
Agriculture		
Landscape		
Wildlife Habitat		
Wetlands		
Industrial		
Groundwater Recharge		
Total	**0**	**0**

[8] Source: http://www.lacsd.org/info/water _reuse/refy0708/refy0708.asp.

6.4.1. Direct Non-Potable Reuse

LAWC does not have the potential for direct non-potable reuse within their service area due to no existing recycled water system.

6.4.2. Indirect Potable Reuse

LAWC does not have the potential for indirect potable reuse within their service area.

6.5. Optimization Plan

Because LAWC is not using recycled water at this time, it is not practicable to provide a recycled water optimization plan. LAWC has positioned itself to receive recycled water if it becomes available to serve some of the large development areas.

To determine if a recycled water project is cost-effective, cost/benefit analyses must be conducted for each potential project. This raises the issue of technical and economic feasibility of a recycled water project requiring a relative comparison to alternative water supply options. Analyses indicate that capital costs of water recycling in LAWC exceed the cost of purchasing additional imported water from Metropolitan.

LAWC will continue to conduct cost/benefit analyses for various recycled water projects and seek creative solutions in coordination with Metropolitan and other cooperative agencies. These include solutions for funding, regulatory requirements, institutional arrangements and public acceptance.

7. Future Water Supply Projects and Programs

7.1. Water Management Tools

Resource optimization, such as recycled feasibility studies to minimize the needs for imported water, is led by the regional agencies in collaboration with local agencies.

With the eventual replacement of older wells with new more efficient wells and the continued efforts in reducing water waste, LAWC can meet projected demands with existing facilities and distribution system.

7.2. Transfer or Exchange Opportunities

LAWC relies on efforts of FMWD and Metropolitan to pursue transfer or exchange opportunities. At this time, LAWC is not currently involved in any transfer or exchange opportunities.

7.3. Planned Water Supply Projects and Programs

At this time, LAWC does not have any planned water supply projects or programs.

7.4. Desalination Opportunities

LAWC does not have opportunities to directly develop desalinated supplies. It does not border the ocean and cannot participate directly in ocean desalination. However, LAWC supports Metropolitan's Seawater Desalination Program (SDP), which provides incentives to Metropolitan's member agencies of up to $250 per acre-foot for the production of desalinated ocean water. Although LAWC is not able to directly participate in seawater desalination, it participates indirectly by supporting Metropolitan's program.

7.4.1. Groundwater

There are currently no brackish groundwater opportunities within LAWC's service area.

7.4.2. Ocean Water

LAWC does not border the ocean and cannot participate directly in ocean desalination opportunities.

8. UWMP Adoption Process

8.1. Overview

Recognizing that close coordination among other relevant public agencies is the key to the success of its UWMP, LAWC worked closely with other entities such as FMWD to develop and update this planning document. LAWC also encouraged public involvement through a holding of a public hearing to learn and ask questions about their water supply.

This section provides the information required in Article 3 of the Water Code related to adoption and implementation of the UWMP. Table 8-1 summarizes external coordination and outreach activities carried out by LAWC and their corresponding dates. The UWMP checklist to confirm compliance with the Water Code is provided in Appendix A.

Table 8-1: External Coordination and Outreach

External Coordination and Outreach	Date	Reference
Encouraged public involvement (Public notification published in Pasadena Weekly)	April 14, 2011 & April 21, 2011	Appendix E
Notified city or county within supplier's service area that water supplier is preparing an updated UWMP (at least 60 days prior to public hearing)	March 15, 2011	Appendix D
Held public hearing	May 20, 2011	Appendix E
Adopted UWMP	May 20, 2011	Appendix F
Submitted UWMP to DWR (no later than 30 days after adoption)	June 19, 2011	
Submitted UWMP to the California State Library and city or county within the supplier's service area (no later than 30 days after adoption)	June 19, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	July 19, 2011	

This UWMP was adopted by the Board of Directors on May 20, 2011. A copy of the adopted resolution is provided in Appendix F.

A change from the 2004 legislative session to the 2009 legislative session required LAWC to notify any city or county within its service area at least 60 days prior to the public hearing. LAWC sent a Letter of Notification to the County of Los Angeles on March 15, 2011 that it is in the process of preparing an updated UWMP (Appendix D).

8.2. Public Participation

LAWC has actively encouraged community participation in its urban water management planning efforts by encouraging attendance and participation in the Annual Shareholders Meeting.

8.3. Agency Coordination

All of LAWC's water supply planning relates to the policies, rules, and regulations of its regional and local providers. LAWC is dependent on imported water from Metropolitan via FMWD and local groundwater from the Raymond Basin, managed by the Raymond Basin Management Board. LAWC serves water to the northwestern portion of Altadena an unincorporated area within the County of Los Angeles. In addition, LAWC consistently negotiates to lease groundwater rights from other water purveyors who cannot pump their groundwater, at a lower cost than imported water. As such, LAWC involved these entities in the development of its 2010 UWMP at various levels of contribution as summarized in Table 8-2.

LAWC staff met and coordinated the development of this plan with FMWD, a wholesale distributor, and the district's member agencies.

Table 8-2: Coordination with Appropriate Agencies

	Participated in Plan Development	Commented on Draft	Attended Public Meetings	Contacted for Assistance	Sent Copy of Draft Plan	Sent Notice of Intention to Adopt	Not Involved/No Information
Foothill Municipal Water District	x			x	x	x	
Raymond Basin Management Board							
General Public						x	
Los Angeles County						x	

8.4. UWMP Submittal

8.4.1. Review of Implementation of 2010 UWMP

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

Comparison of 2005 Planned Water Conservation Programs with 2010 Actual Programs

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

8.4.2. Filing of 2010 UWMP

The Board of Directors reviewed the Final Draft Plan on May 20, 2011. The five-member Board of Directors approved the 2010 UWMP on May 20, 2011. See Appendix F for the resolution approving the Plan.

By June 19, 2011, LAWC's Adopted 2010 UWMP was filed with DWR, California State Library, County of Los Angeles, and cities within its service area.

Appendices

A. Urban Water Management Plan Checklist
B. Raymond Basin Water Rights Adjudication
C. Water Shortage Contingency Plan, Resolution No. LAWC071408
D. 60 Day Notification Letters
E. Public Hearing Notice
F. Copy of Plan Adoption

Appendix A

Urban Water Management Plan Checklist

Urban Water Management Plan checklist, organized by subject

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

No.	UWMP requirement a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Section 8.4
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Section 8.4
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 1.3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.2.1
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M	Section 2.2.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.2.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Section 2.2
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 2.4.3 Section 2.4.4
2	Wholesalers: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. Retailers: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Appendix E Section 2.4.6

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

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		Section 3.3
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate “not applicable” in the UWMP location column.	10631(b)(2)		not applicable
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 3.3.2
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 3.3.2
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 7.2
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 7.3
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 7.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 6.1
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 6.2

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

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

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

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

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

Appendix B

Raymond Basin Water Rights Adjudication

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Special Counsel for Plaintiff

SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

CITY OF PASADENA, a municipal corporation, Plaintiff, vs. CITY OF ALHAMBRA, a municipal corporation, et al., Defendants.	NO. Pasadena C-1323 JUDGMENT (As Modified and Restated March 26, 1984)

The above-entitled action was brought by plaintiff, City of Pasadena, a municipal corporation, against City of Alhambra, a municipal corporation, City of Monrovia, a municipal corporation, City of Arcadia, a municipal corporation, City of Sierra Madre, a municipal corporation, City of South Pasadena, a municipal corporation, La Canada Irrigation District, San Gabriel County Water District, Lincoln Avenue Water Company, a corporation, The Las Flores Water Company, a corporation, Rubio Canon Land and Water Association, a corporation, Valley Water Company, a corporation, Flintridge Mutual Water Company, a corporation, California-Michigan Land and Water Company, a cor-

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poration, Mira Loma Mutal Water Company, a corporation, El Campo Mutual Water Company, a corporation, Sunnyslope Water Company, a corporation, California Water and Telephone Company, a corporation, Crown City Ice Company, a corporation, Rancho Santa Anita, Inc., a corporation, Royal Laundry and Dry Cleaning Company, a corporation, Alice H. Graves, A. V. Wagner, Eugene E. Bean, Fred M. Wilcox, and Charles Hueston Hastings, Defendants, for the purpose of quieting the title of said plaintiff as against said defendants to the alleged prior and paramount right of said plaintiff to take, divert and use the waters within the area involved in the issues of the action situate in the County of Los Angeles, State of California, and to enjoin each defendant found to own a right to take or divert water from the Raymond Basin from taking therefrom, in any year, water in such volume as, when added to the amount which the other parties shall be adjudged and decreed to be entitled to take and divert, would result in a total annual diversion from said basin in excess of the average annual supply of water thereto; and on July 13, 1939, the above-entitled Court having issued its order directing said plaintiff to bring in and make parties to said action Ross M. Lockhard, Pasadena Cemetery Association, a corporation, Altadena Golf Club, a corporation, Henry E. Huntington Library and Art Gallery, a corporation, Bradbury Estate Company, a corporation, and East Pasadena Water Company, Ltd., a corporation, and said Court on the 8th day of November, 1939, having made its order declaring void the order to bring in new parties made July 13, 1939, insofar as East Pasadena Water Company, Ltd., is concerned, and said defendant having been dismissed from

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this action; and

All said parties defendant having been duly served personally with summons and a copy of the complaint, and the issues having been joined; defendant Ross M. Lockhard having answered by his true name Ross M. Lockhart; and Robert A. Millikan, Archer Milton Huntington, Herbert Hoover, William B. Munro and Edwin P. Hubbell, Trustees of the Henry E. Huntington Library and Art Gallery answering for defendant Henry E. Huntington Library and Art Gallery, a corporation; defendants Bradbury Estate Company, a corporation, and Eugene E. Bean having disclaimed any right, title, interest or estate in and to the properties involved in this action, Charles Hueston Hastings, having answered by his true name Charles Heuston Hastings, and since the commencement of this action said defendant Charles Heuston Hastings having died and Ernest Crawford May as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased, having been substituted for said decedent, and A. V. Wagner having answered and having asserted and claimed a right to water on his own behalf and on behalf of others claiming under and through him, and Canyon Mutual Water Company, a corporation, sued herein as Doe Corporation No. 1, having answered under its true name, and defendant Alice H. Graves having died since the commencement of this action, and Alice Graves Stewart and Katharine Graves Armstrong and Francis P. Graves being the heirs at law of said Alice H. Graves, deceased, and being the residuary legatees under the Last Will and Testament of Alice H. Graves, deceased, and having been substituted by stipulation as parties defendant for said

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Alice H. Graves, and plaintiff since the commencement of this action having acquired the water rights owned and claimed by Jacob Bean Securities Company, a corporation, Alice Graves Stewart, Katharine Graves Armstrong and Francis P. Graves, exclusive of the rights of the last named individuals which are hereinafter set forth and defined, and plaintiff having duly filed its supplemental complaint with respect thereto, and the defendant City of Arcadia, since the commencement of this action, having acquired all water rights involved herein of the Rancho Santa Anita, Inc., a corporation, and said defendants having duly filed their supplemental answer with respect thereto, and First Trust and Savings Bank of Pasadena, a corporation, answering as successor in interest to defendant Altadena Golf Club, defendant Sunnyslope Water Company, a corporation, having stipulated that its true name is Sunny Slope Water Company, Chesley E. Osborn and Kathleen M. Osborn having been substituted as parties defendant in the place and stead of defendant Fred M. Wilcox, and Dell A. Schweitzer, executor of the estate of Fred M. Wilcox, deceased; motion of defendant City of South Pasadena for permission to file its amended answer disclaiming any interest or estate in the water and/or water rights in the Raymond Basin as described in plaintiff's complaint, having been granted, and said defendant, City of South Pasadena, having been dismissed from this action, subject to the obligation of said defendant to pay certain costs, plaintiff and certain defendants having jointly filed herein their motion that reference should be made to the Division of Water Resources, Department of Public

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Works, State of California, as referee; after hearing thereon, following notice duly served on all defendants not parties to said motion, said Division of Water Resources having been appointed referee herein to investigate all of the physical facts involved herein, and seasonably to report to the Court thereon, and the said referee having filed its report herein and the objections thereto filed with it, a stipulation in writing having been entered into on the 29th day of September, 1943 by and between the attorneys for certain parties, to wit: City of Alhambra, City of Arcadia, California Water and Telephone Company, Canyon Mutual Water Company, Crown City Ice Company, El Campo Mutual Water Company, First Trust and Savings Bank of Pasadena, Flintridge Mutual Water Company, Francis P. Graves, Alice Graves Stewart and Katharine Graves Armstrong, being the heirs of Alice H. Graves, deceased, and being the residuary legatees under the Last Will and Testament of Alice H. Graves, deceased, Las Flores Water Company, Lincoln Avenue Water Company, Ross M. Lockhart, Ernest Crawford May, as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased, Robert A. Millikan, Archer Milton Huntington, Herbert Hoover, William B. Munro and Edwin P. Hubbell, Trustees of the Henry E. Huntington Library and Art Gallery, Mira Loma Mutual Water Company, City of Monrovia, Chesley E. Osborn and Kathleen M. Osborn, Pasadena Cemetery Association, City of Pasadena, Royal Laundry and Dry Cleaning Company, Rubio Canon Land and Water Association, San Gabriel County Water District, City of Sierra Madre, Sunny Slope Water Company, Valley Water Company, A. V. Wagner and those

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claiming under and through him, and said stipulation having been filed herein on the 24th day of November, 1943, requesting that a certain judgment be entered herein as between said parties, and stipulating that the amount of water pumped or otherwise taken by non-parties to this action in the Western Unit of the Raymond Basin Area as described in Paragraph I of the proposed judgment attached to said stipulation was 340 acre feet per year and that the amount of water pumped or otherwise taken by non-parties to this action in the Eastern Unit of said Raymond Basin Area was 109 acre feet per year, and the Court on November 24, 1943 having made its order making each and all of the terms and provisions of said proposed judgment immediately effective as to said stipulating parties, and on April 5, 1944 the Court having made its order appointing and authorizing the Division of Water Resources of the Department of Public Works of the State of California to act and serve herein as Watermaster in accordance with the provisions of the proposed judgment attached thereto and made a part thereof, and a stipulation between said stipulating parties and the defendant La Canada Irrigation District making the defendant La Canada Irrigation District a party to said stipulation for said judgment and order having been filed in this Court on April 28, 1944, and this Court on April 28, 1944 having ordered that during the pendency of this litigation or until further order of this Court the said defendant La Canada Irrigation District be made a party to the stipulation for judgment and order entered into on the 29th day of September, 1943 and filed on the 24th day of

November, 1943, and all objections and exceptions to the Report of Referee, except those of defendant California-Michigan Land and Water Company, having been withdrawn, and defendant Flintridge Mutual Water Company having assigned all its water rights involved herein to defendant Valley Water Company,

This cause came on regularly for hearing of the objections and exceptions of defendant California-Michigan Land and Water Company filed to the Report of Referee and the further trial of the cause between said defendant and the other parties on the 18th day of May, 1944 before the Honorable Frank C. Collier, judge presiding in Department Pasadena A of the above-entitled Court, the Court sitting without a jury; said hearing and trial were held on the following dates in the year 1944, to wit: May 18, May 19, May 23, May 24, May 25, May 31, June 1, June 2, June 6, June 7, June 8, July 20, August 7 and August 8. A. E. Chandler, Esq., Special Counsel, and Harold P. Huls, Esq., City Attorney, appearing as attorneys for plaintiff; Messrs. Goodspeed, McGuire, Harris & Pfaff by Richard C. Goodspeed, Esq., J. Donald McGuire, Esq., and Paul Vallee, Esq., appearing as attorneys for defendant California-Michigan Land and Water Company; Emmett A. Tompkins, Esq., City Attorney, and Kenneth K. Wright, Esq., appearing as attorneys for defendant City of Alhambra; Paul F. Garber, Esq., City Attorney, and Kenneth K. Wright, Esq., appearing as attorneys for defendant City of Monrovia; Kenneth K. Wright, Esq., appearing as attorney for defendant Ross M. Lockhart; Kenneth K. Wright, Esq., appearing

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as attorney for defendant Flintridge Mutual Water Company; Kenneth K. Wright, Esq., appearing as attorney for defendant Valley Water Company; John C. Packard, Esq. and Kenneth K. Wright, Esq., appearing as attorneys for defendant El Campo Mutual Water Company; Messrs. Derthick, Cusack and Ganahl by W. J. Cusack, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant Crown City Ice Company; Messrs. Dunn & Sturgeon by Walter F. Dunn, Esq., Messrs. Chandler & Wright by Howard W. Wright, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendants Francis Graves, Alice Graves Stewart and Katharine Graves Armstrong; Messrs. Bailie, Turner & Lake by Norman A. Bailie, Messrs. Cruickshank, Brooke & Dunlap by Robert H. Dunlap, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant Ernest Crawford May, as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased; Messrs. Gibson, Dunn & Crutcher by Ira C. Powers, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendants Robert A. Millikan, Archer Milton Huntington, Herbert Hoover, William B. Munro and Edwin P. Hubbell, trustees of the Henry E. Huntington Library and Art Gallery; Messrs. Anderson and Anderson by Trent G. Anderson, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant Rubio Canon Land and Water Association; Frank P. Doherty, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant La Canada Irrigation District; Messrs. Boyle, Holmes & Garrett by John W. Holmes, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant First Trust and Savings Bank of Pasadena; Walter F.

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Dunn, Esq., City Attorney, and Kenneth K. Wright, Esq., appearing as attorneys for defendant City of Sierra Madre; Wilton W. Webster, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant Royal Laundry and Dry Cleaning Company; Messrs. Bacigalupi, Elkus & Salinger by Claude Rosenberg, Esq., and Kenneth K. Wright, Esq., appearing as attorneys for defendant California Water and Telephone Company; Kenneth K. Wright, Esq., appearing as attorney for defendant San Gabriel Valley Water Company; Messrs. Merriam, Rinehart & Merriam by Ralph T. Merriam, Esq., appearing as attorneys for defendant Pasadena Cemetery Association; Frederick G. Stoehr, Esq., appearing as attorney for defendant A. V. Wagner; Messrs. Potter and Potter, by Bernard Potter, Esq., appearing as attorneys for defendant Mira Loma Mutual Water Company; Gerald E. Kerrin, Esq. and James C. Bone, Esq., City Attorney, appearing as attorneys for defendant City of Arcadia; Laurence B. Martin, Esq., appearing as attorney for defendant Sunny Slope Water Company; Robert E. Moore, Esq., appearing as attorney for defendant Lincoln Avenue Water Company; Messrs. Hahn and Hahn by Edwin F. Hahn, Esq., appearing as attorneys for defendant The Las Flores Water Company; Messrs. Hahn and Hahn by Edwin F. Hahn, Esq., appearing as attorneys for defendants Chesley E. Osborn and Kathleen M. Osborn; and Messrs. Hahn and Hahn by Edwin F. Hahn, Esq., appearing as attorneys for defendant Canyon Mutual Water Company, and

All objections and exceptions to the Report of Referee filed by defendant California-Michigan Land and Water Company having been overruled by the Court with the exception

of objection 18 which was withdrawn by said defendant, and

Certain stipulations having been entered into by and between the parties and evidence both oral and documentary having been introduced and the cause having been submitted to the Court for its decision upon briefs, and briefs for the respective parties having been filed and considered, the Court, being fully advised in the premises, and having made its findings of fact and conclusions of law, and

The Court, by reason of the stipulation aforesaid and the findings of fact and conclusions of law, having rendered its Judgment on December 23, 1944, and such Judgment having been entered in Book 1491, page 84, on December 26, 1944, and

Pursuant to its reservation of jurisdiction in this case, and pursuant to appropriate motions, the Court having modified the Judgment on April 29, 1955; on January 17, 1974; and on June 24, 1974, and

Plaintiff having moved the Court for an order further modifying and restating the Judgment as modified, such motion having come on regularly for hearing on the 16th day of March, 1984, in Department A of the Northeast District of this Court, the Honorable Robert M. Olson, Judge, presiding; and notice of such motion having been duly served on all defendants and interested parties; and no objections to the granting of the motion having been filed or made at the hearing; and good cause having been shown, and the Court having therefore granted the motion, pursuant to the continuing jurisdiction of the Court,

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IT IS HEREBY ORDERED, ADJUDGED AND DECREED that the Judgment in this case be modified and restated (including all transfers of rights and prior modifications which remain valid) as follows:

I

There exists in the County of Los Angeles, State of California, a field of groundwater, known and hereinafter referred to as the Raymond Basin Area, and subdivisions thereof herein designated the Eastern Unit and the Western Unit which are shown on the map attached hereto and hereby made a part hereof.

Under existing conditions, the safe yield of said Eastern Unit is 5,290 acre feet per year, and the safe yield of said Western Unit is 25,480 acre feet per year.

The amount of water pumped or otherwise taken by non-parties to this action in said Western Unit is less than 100 acre feet per year, and the amount of water pumped or otherwise taken by non-parties to this action in said Eastern Unit is zero acre feet per year.

The parties hereto pumping from wells or otherwise taking water for beneficial use from the ground in said subdivisions of said Raymond Basin Area are as shown in the table in Paragraph IV hereof.

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II

As to those parties hereto who are taking or diverting water for beneficial use from any source contributing to the supply of water in the ground in said Raymond Basin Area, each of said parties has the right as against all parties other than the defendant California-Michigan Land and Water Company, no determination as to the existence of such right being made as against it, to continue to divert from such source for such use an amount of water measured by the maximum capacity of its diversion works and other facilities as the same existed at any time within five (5) years prior to October 1, 1937. That said maximum capacities of the said works and facilities of each of said parties in cubic feet per second are as follows:

La Canada Irrigation District (Snover Canyon)	1.20
Las Flores Water Company	0.50
Lincoln Avenue Water Company	6.59
Lockhart, Ross M.	1.20
May, Ernest Crawford, as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased	0.26
Mira Loma Mutual Water company	0.81
Pasadena Cemetery Association	0.02
Pasadena, City of	
Arroyo Seco Including Millard Canyon	25.00
Eaton Canyon	8.90
Rubio Canon Land and Water Association	2.20
Sierra Madre, City of	6.00

Each of said parties, and each of their agents, employees, attorneys, and any and all persons acting by, through, or under them, or any of them, are and each of them is hereby forever enjoined and restrained from increasing its taking or diversion from such source beyond the amount of

such taking or diversion as measured by said maximum capacity of its diversion works and other facilities.

Each of the said parties, and their successors in interest, having diversion rights as set forth above in the Western Unit of the Raymond Basin Area shall have the right in its discretion to spread the surface water diverted pursuant to its respective right, and to recapture eighty percent (80%) thereof by pumping, subject to and upon the following terms and conditions.

(1) The water shall be spread for percolation into the underground in the existing water conservation facilities of the Los Angeles County Flood Control District, or in such additional spreading grounds as the parties may acquire or construct, or in any natural stream channels leading to such existing or future spreading grounds, provided that all such spreading locations shall be located within the Monk Hill Basin or Pasadena Subarea hydrologic subdivisions of the Western Unit of the Raymond Basin Area.

(2) A metering device, or devices, shall be installed and maintained by each diverting party at such party's expense to measure all amounts of water diverted by such party for spreading purposes. Such metering facilities, and the continued accuracy thereof, shall be subject to the approval of the Watermaster and the Los Angeles County Flood Control District, and all such measurements shall be available to them. The Watermaster, with such assistance as the Los Angeles County Flood Control District may provide, shall determine and account for all water diverted for spreading, the amount of water spread

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and available for recapture, and the amount so recaptured, and shall include such determinations and accounting in its reports.

(3) In the event that the capacity of any of the spreading grounds of the Los Angeles County Flood Control District is fully utilized for the conservation of natural flows, and water diverted for spreading in such facilities cannot be percolated into the Basin and escapes therefrom, such quantity of water shall be subtracted from the amount diverted for spreading to determine the amount available for recapture. Such losses shall be divided among the parties diverting water for such spreading in proportion to the amounts diverted at the time the loss occurs.

(4) Each such party shall have the right to pump from any wells in the Monk Hill Basin an amount of water equal to eighty percent (80%) of the amount which it has diverted for such spreading therein and which is available for recapture, and the right to pump from any wells in the Pasadena Subarea an amount of water equal to eighty percent (80%) of the amount which it has diverted for such spreading therein and which is available for recapture. Such amounts pumped shall be in addition to the respective Decreed Rights of the parties as provided in the Judgment herein, as modified on April 29, 1955, and in addition to the amounts which can be pumped or otherwise taken under the provisions of Paragraph V hereof. Any amounts recaptured under the terms of this Paragraph shall be pumped in such a manner as not to injure other parties having rights under this Judgment. The effect of such pumping shall be monitored by the Watermaster, and the Watermaster shall report any such injury to the Court

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for appropriate action.

(5) Any additional amounts allowed to be taken as provided in subparagraph (4) above shall be pumped by the end of the next accounting year utilized by the Watermaster following such diversions for spreading. If such pumping does not occur within this period of time, the right to take such amount of water shall be lost.

(6) For accounting purposes, the first water taken from the Western Unit of the Raymond Basin Area during any accounting year, by any party having made diversions for spreading purposes during the previous accounting year, shall be considered by the Watermaster as water pumped pursuant to subparagraph (4) above, unless such water was pumped during the same accounting year in which it was diverted and spread.

(7) The rights provided in subparagraph (4) above shall apply to all water diverted for spreading as required herein after May 1, 1973.

(8) The right to divert for spreading and recapture is an alternative, in whole or in part, to the right to make direct use of such diversions, and does not preclude the direct use of such water, provided that the total amount of water diverted, either for spreading or direct use, does not exceed the respective rights of the parties set forth above.

(9) These provisions concerning the right to spread and recapture by pumping remain subject to the continuing jurisdiction of the Court. Any additional costs incurred by the Watermaster in making determinations, accountings, reports, and monitoring of pumping as required in connection with such

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spreading and recapture of water shall be paid by the parties diverting water for spreading in proportion to the amount of water which each party diverts for such purpose. Such costs shall be included as part "C" of the Watermaster's Annual Budget.

III

Each and all of the rights of the parties hereto to pump water from wells or otherwise take water from the ground in said Raymond Basin Area are of equal priority and of the same legal force and effect.

IV

Subject to the provisions of Paragraphs V, VI and XXI hereof, each party hereto is the owner of the right to pump water from wells or otherwise take water from the ground in each of said units in the amount set forth opposite the name of each party in the following table, which said right, for convenience, is designated the "present unadjusted right":

PRESENT UNADJUSTED RIGHTS TO TAKE
WATER IN RAYMOND BASIN AREA

Eastern Unit	Acre Feet Per Year
Arcadia, City of	2,527
Sierra Madre, City of	1,264

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Western Unit

Alhambra, City of	1,042
Arcadia, City of (including, as successor, the rights of the City of Monrovia)	2,141
California American Water Company (as successor to the California Water and Telephone Company, and including, as successor, the rights of the El Campo Mutual Water Company)	2,324
Crown City Ice Company	0
East Pasadena Water Company (as successor to the California-Michigan Land and Water Company)	521
Henry E. Huntington Library and Art Gallery (as successor to Robert A. Millikan, et al., Trustees of the Henry E. Huntington Library and Art Gallery)	265
Kinneloa Irrigation District (as successor to the rights of Francis P. Graves, et al.; Ross M. Lockhart; A. V. Wagner; Mira Loma Mutual Water Company; Canyon Mutual Water Company; and Chesley E. and Kathleen M. Osborn)	522
La Canada Irrigation District	101
Las Flores Water Company	252
Lincoln Avenue Water Company	573
May, Ernest Crawford, as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased	0
Milum Textile Services Company (as successor to Royal Laundry and Dry Cleaning Company)	111
Pasadena Cemetery Association	92
Pasadena, City of (including, as successor, the rights of the First Trust and Savings Bank of Pasadena)	12,946

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Rubio Canon Land and Water Association	1,234
San Gabriel County Water District	1,103
Sunny Slope Water Company	1,575
Valley Water Company (including, as successor, the rights of the Flintridge Mutual Water Company)	806

The total of said rights in the Eastern Unit is 3,791 acre feet per year, and the total of said rights in the Western Unit is 25,608 acre feet per year.

V

In order to maintain and protect the supply of water in the ground in said Raymond Basin Area, it is necessary that the respective parties to this action be limited in the exercise of their respective present unadjusted rights, and the right, so limited, in acre feet per year, of each party to pump water from wells or otherwise take water from the ground, in the Western Unit, is as set forth in the table at the end of this Paragraph V, and in the Eastern Unit as set forth in Paragraph VI hereof. Said right, for convenience, is designated the "decreed right." In said Western Unit the amount of the decreed right of each party hereby is determined by reducing the present unadjusted right of each party as tabulated in Paragraph IV hereof, in the proportion that the safe yield of said unit, less the water taken therein by non-parties hereto, bears to the aggregate of such rights of the parties hereto in said unit. Each of said parties and

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each of their agents, employees, attorneys, and any and all persons acting by, through, or under them, are and each of them is, subject to the terms of Paragraph XXI hereof, hereby forever enjoined and restrained on and after July 1, 1944, as to all parties other than California-Michigan Land and Water Company, and on and after July 1, 1945 as to said California-Michigan Land and Water Company, from pumping or otherwise taking from the ground in said Western Unit more water than its decreed right in this Paragraph determined; provided that a party may exceed its decreed right to the extent that it has acquired and exercises the decreed right of any other party, or as may become necessary in the case of an emergency or temporarily for other reasonable cause as determined by the Watermaster, taking into account the basin supply, quality conditions, the impact on other parties, and subject to such conditions as the Watermaster may impose, including whether or not such excess extractions must be made up in future years; and provided, however, that any of the parties to this action may take in any twelve-month period beginning July 1 for its own beneficial use, and for the release of water for use by other parties or persons pursuant to and in accordance with the Raymond Basin Area Water Exchange Agreement for 1943 and amendment thereto, hereinafter referred to, attached hereto and hereby made a part hereof, an amount not exceeding one hundred ten percent (110%) of its decreed right as fixed herein, plus any amount of allowable underpumping as hereinafter provided. Any such extractions in excess of a party's decreed right (not including any emergency or temporary

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extractions authorized by the Watermaster) shall be made up in the following year, and the amount of water which a party may take under its decreed right in that year shall be reduced by an equivalent amount. If a party in any twelve-month period, beginning July 1, takes less than its decreed right, or less than the amount allowed after reduction for any excess extractions, the amount of such underpumping, but not exceeding ten percent (10%) of its decreed right or such additional amount as the Watermaster may allow for an emergency or other reasonable cause, may be carried over and taken during the next succeeding year. The yearly period from July 1 to June 30 hereby is adopted and shall be used in the administration and enforcement of this Judgment.

DECREED RIGHTS TO TAKE WATER FROM THE GROUND
IN SAID WESTERN UNIT IN ACRE FEET PER YEAR

	Acre Feet Per Year
Alhambra, City of	1,031
Arcadia, City of (including, as successor, the rights of the City of Monrovia)	2,118
California American Water Company (as successor to the California Water and Telephone Company, and including, as successor, the rights of the El Campo Mutual Water Company)	2,299
East Pasadena Water Company (as successor to the California-Michigan Land and Water Company)	515
Henry E. Huntington Library and Art Gallery (as successor to Robert A. Millikan, et al., Trustees of the Henry E. Huntington Library and Art Gallery)	262

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Kinneloa Irrigation District (as successor to the rights of Francis P. Graves, et al.; Ross M. Lockhart; A. V. Wagner; Mira Loma Mutual Water Company; Canyon Mutual Water Company; and Chesley E. and Kathleen M. Osborn)	516
La Canada Irrigation District	100
Las Flores Water Company	249
Lincoln Avenue Water Company	567
Milum Textile Services Company (as successor to Royal Laundry and Dry Cleaning Company)	110
Pasadena Cemetery Association	91
Pasadena, City of (including, as successor, the rights of the First Trust and Savings Bank of Pasadena)	12,807
Rubio Canon Land and Water Association	1,221
San Gabriel County Water District	1,091
Sunny Slope Water Company	1,558
Valley Water Company (including, as successor, the rights of the Flintridge Mutual Water Company)	797
Total Western Unit	25,332

VI

The decreed right of each party hereto in said Eastern Unit is as follows:

City of Arcadia, 3,526 acre feet per year;

City of Sierra Madre, 1,764 acre feet per year.

Each of said parties, and each of their agents, employees, attorneys and any and all persons acting by, through, or under them, are and each of them is subject to

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the terms of Paragraph XXI hereof, hereby forever enjoined and restrained on and after July 1, 1944, as follows:

(1) From pumping or otherwise taking from the ground in said Eastern Unit more water than its decreed right in this Paragraph determined; provided that a party may exceed its decreed right to the extent that it has acquired and exercises the decreed right of any other party, or as may become necessary in the case of an emergency or temporarily for other reasonable cause as determined by the Watermaster, taking into account the basin supply, quality condition, the impact on other parties, and subject to such conditions as the Watermaster may impose, including whether or not such excess extractions must be made up in future years; and provided, however, that any of the parties to this action may take in any twelve-month period beginning July 1 for its own beneficial use, and for the release of water for use by other parties or persons pursuant to and in accordance with the Raymond Basin Area Water Exchange Agreement for 1943 and amendment thereto, hereinafter referred to, attached hereto and hereby made a part hereof, an amount not exceeding one hundred ten percent (110%) of its decreed right as fixed herein, plus any amount of allowable underpumping as hereinafter provided. Any such extractions in excess of a party's decreed right (not including any emergency or temporary extractions authorized by the Watermaster) shall be made up in the following year, and the amount of water which a party may take under its decreed right in that year shall be reduced by an equivalent amount. If a party in any twelve-month

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period, beginning July 1, takes less than its decreed right, or less than the amount allowed after reduction for any excess extractions, the amount of such underpumping, but not exceeding ten percent (10%) of its decreed right or such additional amount as the Watermaster may allow for an emergency or other reasonable cause, may be carried over and taken during the next succeeding year.

(2) From pumping or otherwise taking water from the ground in said Eastern Unit in any year within one-half mile of its western boundary in an amount which, in addition to other extractions, would be in excess of the average amount pumped or taken in said one-half mile zone during the period 1927-28 to 1937-38, to wit: 88 acre feet per annum, the half mile being measured along a perpendicular erected on the boundary between said unit and said Western Unit as shown on the map attached hereto.

(3) From pumping or otherwise taking water from the ground in said Eastern Unit in any year in excess of the average amount pumped or taken therein during the period 1927-28 to 1937-38, to wit: 3,261 acre feet per annum, during any year in which static groundwater level measurements, made at the time of maximum high water table in the spring season of each year, show that the average water table elevation in the area between Foothill Boulevard and Raymond Fault and between a line 300 feet west of Rosemead Boulevard and a line 100 feet east of Michillinde Avenue, less any increase in such elevation that is attributable to any groundwater storage program, is higher than that at the Arcadia group of

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wells designated as such on said map attached hereto and located west of the intersection of Orange Grove and Santa Anita Avenues in the City of Arcadia, this limitation to apply only when the water table elevation at said group is less than 500 feet above sea level, United States Geological Survey datum.

VII

There is now and, so long as the requirements in subparagraphs 2 and 3 of Paragraph VI hereof are fulfilled and maintained, there will be no material movement of water across the boundary between the Western Unit and the Eastern Unit.

VIII

Nothing in this Judgment contained shall be deemed to modify the rights as between the defendants City of Sierra Madre and City of Arcadia as set forth in that certain Judgment entitled "The City of Sierra Madre, a municipal corporation, et al., vs. The City of Arcadia, a municipal corporation," No. 209747 in the Superior Court of the State of California, in and for the County of Los Angeles, entered on the 22nd day of April, 1930, but in the exercise of such rights each of said parties shall be subject to the express provisions of Paragraph VI hereof.

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IX

A Watermaster shall be appointed by this Court to serve at the pleasure of the Court to administer and enforce the provisions of this Judgment, the Raymond Basin Area Water Exchange Agreement of 1943 and amendment thereto, attached hereto and made a part hereof, and the instructions and orders of this Court, and if any such provisions, instructions or orders of the Court, or any order, rule or direction of such Watermaster, made in accordance with and for the enforcement of this Judgment and said Agreement and amendment thereto, shall have been disobeyed or disregarded, said Watermaster hereby is empowered and authorized to report promptly to the Court such fact and the circumstances connected therewith and leading thereto.

A violation of any provision of this Judgment, or attached Agreement and amendment thereto, or order, instruction, rule or direction of the Court or of the Watermaster, shall be punished in such manner as the Court may direct.

The compensation of said Watermaster shall be fixed by an order or orders which the Court hereafter from time to time may make.

X

There is hereby established a Raymond Basin Management Board (sometimes hereafter called "Board") which shall be the Watermaster. The Board shall have all of the rights,

and shall carry out all of the responsibilities, of the Watermaster as provided in this Judgment. In addition, in order to implement sound water management practices within the framework of the rights of the parties as determined herein, the Board shall have the powers set forth in Paragraph XII.

XI

The Board shall be organized and constituted as follows:

(1) Each party holding a decreed right of 1,000 acre feet or more shall appoint one member to the Board.

(2) The parties within each subarea, namely, Monk Hill Subarea, Pasadena Subarea, and the Eastern Unit, who each hold decreed rights of less than 1,000 acre feet shall together appoint a member from each respective subarea. The appointment for each subarea shall be by majority vote, with each such party having one vote.

(3) No party shall have the right to appoint, or to participate in the appointment of, more than one member to the Board.

(4) Board members shall have broad engineering or management experience in the operation of a water utility or groundwater basin.

(5) Each member shall be appointed for a term of one year, or until replaced. Members shall serve at the pleasure of the appointing party, parties or body. No member

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shall be appointed by or represent more than one party or group of parties. The Board shall select its own officers. A quorum of the Board shall consist of six members, and the Board may act by a majority of those members present at a meeting. The Board shall meet at least quarterly, and all parties to the action may attend. Minutes of the Board meetings shall be kept and sent to all parties in the action. The Board shall have the power to adopt such by-laws, rules and regulations, not inconsistent with the terms of this Judgment, as may be necessary for its own organization and operation.

XII

The powers and responsibilities of the Raymond Basin Management Board, as Watermaster and otherwise, shall be exercised with a view toward protecting the long-term quantity and quality of the groundwater supply; utilizing the groundwater storage capacity of the basin for the maximum advantage of the parties, without however causing significant adverse impact upon any party; integrating to the extent feasible the use of surface and groundwater supplies so as to reduce costs, improve reliability of supply, and to protect against drought; and to encourage the parties to cooperate in the utilization of their respective water rights and water systems for the mutual good. The Board shall have power:

(1) To contract with the California Department of Water Resources, or with any other competent person or firm,

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to perform all or part of the Watermaster functions.

(2) To determine the amount of storage capacity that is available in the basin from time to time for groundwater storage programs.

(3) To allocate such storage capacity among the parties, and to provide for its use and the recapture of equivalent amounts of stored water. The Board may approve, condition or disapprove proposed water storage programs, and imported, nontributary water shall not be stored in the basin without the Board's approval. Approved programs shall include provisions for the duration of allowed storage of water, for determination of losses, for the rates and places of recapture, and for such other conditions as may be necessary to prevent operational problems for other parties, including degradation of water quality.

(4) To control the direct recharge into the basin of imported, non-tributary water.

(5) To issue such rules and regulations as may be necessary in order to account properly for sales, leases, exchanges or other transfers among the parties of decreed rights and the use of water. The Board shall attempt to facilitate, not restrict, such transfers, including efforts to develop agreements for the production and distribution of water through facilities of other parties where such practices promote efficiency and sound water management. This policy shall extend to the use of stored water where consistent with the policies of The Metropolitan Water District of Southern California with respect to the use of supplemental water

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which it provides.

(6) To conduct studies or undertake other activities for the common benefit of the parties in the operation of the Raymond Basin Area; to obtain engineering, legal and other professional services in such connection; and, in addition to the Watermaster budget procedures, to assess the parties in an equitable manner and as may be necessary to pay the costs of the Board's operations, which assessments shall be paid by the parties. Payment shall be enforced in the same manner as provided in Paragraph XV for the annual budget, although the actual apportionment of costs may differ from the method provided in Paragraph XV. All actions of the Board, including any assessments imposed, shall be subject to review by the Court, pursuant to the procedures of Paragraph XVII.

XIII

Each party hereto at its own expense shall:

(1) Measure and keep records of all its diversions from any source contributing to the supply of water in the ground, of its importations of water, and of its production of water from the ground in the Raymond Basin Area, subject to the approval of the Watermaster as to equipment and methods;

(2) Measure and keep records of its production and distribution in such manner as to show its use in, transfers within, and exports of water from the Raymond Basin Area, or any subdivision thereof, as required by the Watermaster;

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(3) Measure and record the depth to the water table in all wells owned or operated by it within the Raymond Basin Area once a month, or as required by the Watermaster.

Any party owning any facilities for the diversion from any source contributing to the supply of the water in the ground in the Raymond Basin Area, or for pumping or otherwise taking water from the ground in said area, at its own expense shall install and at all times maintain in good working order reliable measuring devices and facilities for testing said devices and shall keep records of its diversions and production through the use of such devices and facilities as may be required by the Watermaster; that upon failure of any such party to install such devices and facilities on or before such day as the Watermaster shall fix, after due notice from the Watermaster so to do, the Watermaster shall give the Court notice of such failure for proper action in the premises.

XIV

In addition to other duties herein provided, the Watermaster shall:

(1) Supervise the collection, assembly and presentation of the records and other data required of the parties; such records and other data to be open to inspection by any party or its representative during normal business hours.

(2) Require all parties hereto to operate their respective wells in a manner which will accomplish the stated

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purposes of said Agreement and amendment thereto, and will effectuate this Judgment without placing undue burden on any party; study separately pumping patterns in the Monk Hill Basin, Pasadena Subarea, and the Eastern Unit, and report recommendations thereon not less than twice each year; such report shall recognize the right of each party to pump its decreed right, but shall include recommendations as to whether more or less water should be pumped from individual wells; such recommendations shall be calculated to minimize interference among parties, to conserve energy, expense and local water supplies, and to provide for the most efficient and equitable use of groundwater in the Raymond Basin Area; such recommendations shall be advisory only, and shall not be binding upon the parties unless confirmed by order of this Court.

(3) Establish an ongoing program to monitor water quality in the Raymond Basin Area.

(4) Prepare a tentative annual budget for the fiscal year commencing July 1, separately stating the anticipated expense for administering the provisions of said Agreement and amendment thereto for the release and receipt of water, and the anticipated expense of the administration of the other provisions of said Agreement and amendment thereto and of enforcing this Judgment. The Watermaster shall serve said tentative budget upon each of the parties on or before May 1 of each year. If any party has any objection to said tentative budget, or any suggestions with respect thereto, it shall present the same in writing within ten (10) days after

service thereof upon it. Thereafter, the Watermaster shall prepare a final budget and serve the same upon each party. If any party objects to said final budget it may make written objection thereto by filing its objection with this Court within fifteen (15) days after service of the same upon it, after first having served such objection upon each party hereto, and shall bring such objection on for hearing before this Court within fifteen (15) days after such filing, or at such time as the Court may direct.

If no objection to said budget be made as herein provided, it shall be the annual budget for the particular year involved. If objection to such budget be filed with this Court as herein provided, then the annual budget shall be determined by the order of this Court.

(5) Make an annual report on or before September 1 of each year to the parties hereto of the scope of the Watermaster's work during the preceding fiscal year and a statement of receipts and expenditures in appropriate detail, segregated as to the items attributable to the administration of the provisions of said Agreement and amendment thereto respecting the release and receipt of water, and as to the items attributable to the administration of the other provisions of said Agreement and amendment thereto and to the enforcement of this Judgment.

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XV

The cost of enforcing this Judgment or any order or direction of this Court or of the Watermaster (other than those with respect to the release and receipt of water in accordance with the provisions of said Agreement and amendment thereto) shall be borne by the parties in proportion to their respective decreed rights as determined in Paragraphs V and VI of this Judgment, and the Watermaster shall assess such cost to each party accordingly.

Payment thereof shall be made by each party within thirty (30) days after the annual budget shall have become final and the service on such party by the Watermaster of a statement of the amount due. If payment be not made within said thirty (30) days, such payment shall be delinquent and the Watermaster shall add a penalty of ten percent (10%) thereof to said statement, and the amount of said statement plus said penalty thereupon shall be due and payable. Payment required of any party hereunder or under the terms of said Agreement and amendment thereto may be enforced by execution issued out of this Court or as may be provided by any order hereinafter made by this Court. All payments and penalties received by the Watermaster, except payments received on account of the release and receipt of water, shall be deposited by the Watermaster in a fund which shall be designated "The Watermaster Service Fund" and shall be expended for the administration of the Agreement and amendment thereto and the enforcement of this Judgment in accordance with the annual

budgets herein provided for. Any money remaining at the end of any year shall be available for use the following year for such Watermaster service. Money collected or received by the Watermaster in connection with the release and receipt of water under the provisions of said Agreement and amendment thereto shall be deposited by him in a special deposit fund and paid out by him in accordance with the provisions of said Agreement and amendment thereto.

XVI

Any Watermaster ceasing to perform Watermaster service hereunder immediately upon such cessation shall deposit with the clerk of this Court all funds in his possession collected from the parties in accordance with this Judgment or said Agreement and amendment thereto, and forthwith shall serve upon the parties hereto and file with this Court his final account and report, and shall deliver to his successor, or as the Court may direct, all property and all records or certified copies thereof.

XVII

Any party having objection to any determination or finding made by the Watermaster, other than as provided in subparagraph (4) of Paragraph XIV hereof, may make the same in writing to the Watermaster within thirty (30) days after the making of such determination or finding after first

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having served a copy of such objection upon each party, and within thirty (30) days thereafter the Watermaster shall consider said objection and shall amend or affirm his finding or determination; any party objecting thereto within thirty (30) days thereafter may file its objections with this Court, bringing the same on for hearing before said Court within sixty (60) days thereafter, or at such time as the Court may direct, after first having served said objection upon each party. The Court may affirm, modify, amend or overrule any such finding or determination of the Watermaster.

XVIII

Within thirty (30) days after the appointment of the Watermaster, each of the parties shall file with the Watermaster and serve on each party the name and address of the person to whom any notice, demand, request, objection or the submission of any budget and the annual report is to be made or given, and each of said parties may change the name and address of said person from time to time by filing said changed name and address with the Watermaster and by serving a copy thereof upon each of the parties hereto.

Any notice, demand, request, objection or the submission of a budget and the annual report required or authorized by this Judgment or said Agreement and amendment thereto to be given or made to or served upon any party or the Watermaster, shall be delivered or mailed by registered mail postage prepaid to the person so designated at the

address last filed with the Watermaster. Such service by mailing shall be complete at the time of the deposit in the United States mail.

Notice of any other motion or proceeding herein may also be given by service upon the person and at the address filed with the Watermaster, in the manner designated in this Paragraph, provided that certified or registered mail may be used. If any party or successor in interest has failed to make such filing with the Watermaster, notice may be mailed to the address which the Watermaster uses for such party or successor.

XIX

The agreement entered into by certain parties, entitled "Raymond Basin Area Water Exchange Agreement of 1943" and amendment thereto, a copy of which is attached hereto, and each and all of its terms and provisions be, and the same is and are hereby fully approved, and said Agreement and amendment thereto is hereby expressly made a part of this Judgment to the same purpose and effect as though said Agreement and amendment thereto were at this point fully herein written and set forth at length; provided, however, that California-Michigan Land and Water Company, Sunny Slope Water Company, and Ernest Crawford May, as Executor of the Last Will and Testament of Charles Heuston Hastings, deceased, who are not parties to said Agreement or amendment thereto, shall not be bound by nor required to perform any of the provisions

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thereof, nor pay any part of the cost of administering or enforcing said Agreement or amendment thereto; that the power of the Court is hereby expressly made to underlie all of the terms and provisions of said Agreement and amendment thereto and the enforcement thereof, and that the parties thereto, and each thereof, are hereby ordered to perform fully said Agreement and amendment thereto and all of its said terms and provisions.

No taking of water by any party under the provisions of said Agreement and amendment thereto concerning the release and receipt of water in any amount in excess of its decreed right to pump or otherwise take water from the ground in the Raymond Basin Area shall constitute a taking adverse to any other party; nor shall any party have the right to plead the statute of limitations or an estoppel against any other party by reason of its said taking of water in the Raymond Basin Area pursuant to a request for the release of water; nor shall such release of water by any party constitute a forfeiture or abandonment by such party of any part of its decreed right to water; nor shall such release in any wise constitute a waiver of such right, although such water, when released under the terms of said Agreement and amendment thereto, may be devoted to the public use of others; nor shall such release of water by any such party in any wise obligate any party so releasing to continue to release or furnish water to any other party or its successor in interest, or to the public generally, or to any part thereof, otherwise than as provided in Article IV of said Agreement and amendment thereto.

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XX

In the event any party shall serve upon the parties and file with the Watermaster and with the Court a declaration of forfeiture or abandonment of its decreed right, or any part thereof, said party shall be relieved of the payment of further costs of administering the provisions of said Agreement and amendment thereto and enforcing this Judgment applicable to the right so forfeited or abandoned; provided that said relief from said further costs shall not become effective until the beginning of the next fiscal year for which a budget has not become final; and provided that said party making such forfeiture or abandonment shall pay to the Watermaster its proportion of such costs to the effective date of such relief from costs. The amount of water so abandoned or forfeited shall be available immediately for use by the parties in the proportions set forth in Paragraphs V and VI hereof, pending the time that any review shall have been made as provided for in Paragraph XXI hereof.

XXI

The Court hereby reserves jurisdiction and authority upon application of any party hereto, or upon its own motion, to review (1) its determination of the safe yield of either or both of said units of the Raymond Basin Area, or (2) the rights, in the aggregate, of all of the parties in either or both of said units as affected by the abandonment or forfeiture

of any right, in whole or in part, decreed herein, and by the abandonment or forfeiture of any right by any other person or entity, and, in the event material change be found or any such abandonment or forfeiture be established, to adjudge that the decreed right of each party to pump or otherwise take water from the ground in the Raymond Basin Area shall be changed proportionately in the same manner as originally fixed herein; provided, however, that notice of such review shall be served on all parties at least thirty (30) days prior thereto and that the review of its determination of the safe yield of either or both of said units of the Raymond Basin Area shall be had not more frequently than at five (5) year intervals after the date hereof. Except as provided herein, and except as rights decreed herein may be abandoned or forfeited by nonuser, in whole or in part, each and every right decreed herein hereby is fixed as of the date hereof.

XXII

The Court hereby reserves jurisdiction and authority at any time, upon application of any party, the Watermaster, or upon its own motion, to make such modifications of, or such additions to, the provisions of this Judgment, or to make such further order or orders, as may be necessary or desirable for the adequate enforcement, protection or preservation of the rights of the respective parties as declared in this Judgment or as provided in said Agreement and amendment thereto. The Court further reserves jurisdiction to make any

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other and/or additional orders of sufficient kind and nature to protect the waters in said Raymond Basin Area or any portion thereof from contamination of the groundwater supply from cesspool effluent or surface waters.

XXIII

The defendant California-Michigan Land and Water Company is entitled to become a party to the Raymond Basin Area Water Exchange Agreement of 1934 and thereby become entitled to receive water upon the same terms and conditions provided in said Agreement with respect to the several parties thereto.

XXIV

The defendant Bradbury Estate Company, a corporation, and Eugene E. Bean be and they hereby are dismissed without costs.

XXV

None of the parties is entitled to recover its costs as against any other party.

DATED: March 26, 1984

/s/ Robert M. Olson
JUDGE OF THE SUPERIOR COURT

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Appendix C

Water Shortage Contingency Plan, Resolution No. LAWC071408

Water Shortage Contingency Plan

(6)

COPY

LINCOLN AVENUE WATER COMPANY

WATER SHORTAGE CONTINGENCY PLAN

MARCH 11, 1992

LINCOLN AVENUE WATER COMPANY
WATER SHORTAGE CONTINGENCY PLAN

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SECTION 1 COORDINATED PLANNING

Lincoln Avenue Water Company coordinated preparation of this plan with the following agencies:

1. Foothill Municipal Water District. Foothill is a member agency of the Metropolitan Water District of Southern California (MWD), and receives all of its water from MWD. Due to our reliance on Foothill for the majority of our water supply, Foothill's Draft Water Shortage Contingency Plan, dated February 19, 1992, was utilized for data and reference.

2. Metropolitan Water District of Southern California. Due to Foothill's reliance of MWD for all of its water supply, MWD's Draft Drought Contingency Plan, dated December 21, 1991, was utilized for data and reference.

3. The Raymond Basin Management Board. This agency is responsible for the management of the Raymond Groundwater Basin where Lincoln Avenue's groundwater is produced.

SECTION 2 PAST, CURRENT, AND PROJECTED WATER USE (1991-1994)

Lincoln Avenue Water Company was established in 1883 and incorporated in 1896 to supply water to the west side of Altadena, an un-incorporated territory of Los Angeles County. The service area encompasses 1,500 square miles. Lincoln Avenue services an estimated 15,000 residents through 4,120 metered connections.

Ninety-seven percent (97%) of service connections are residential, two percent (2%) are commercial, and one percent (1%) is governmental.

TABLE 1 WATER USE PROJECTIONS BY CUSTOMER TYPES INCLUDING GROWTH

CUST. TYPE	CONNECTIONS	HIGHEST USE AF	ACTUAL USE 1991 AF	PROJECTED 1992 AF	PROJECTED 1993 AF	PROJECTED 1994 AF
Residential	3,978	2,098	1,410	1,438	1,450	1,465
Commercial	126	167	158	150	155	160
Governmental	16	67	60	60	62	65
TOTAL	4,120	2,332	1,628	1,648	1,667	1,690

There is some potential for growth within our service area in the near future but in the last few years, each attempt at development has been overcome by excessive cost. As a result, we have experienced a very low growth rate.

SECTION 3 WORST CASE WATER SUPPLY AVAILABILITY FOR 12, 24, & 36 MONTHS

The water that Lincoln Avenue Water Company supplies to its customers is derived from two sources:

1. Wells: Our well production is limited by a decreed right judgement dating back to 1955. Management and control of the underground water supply from the Raymond Basin and the sub-basin known as the Monk Hill Basin from which our supplies are drawn, is vested in the Raymond Basin Management Board. Beyond representation on the Board, we have no control over the management of the underground supply. Our actual allocation from the basin remains at approximately 567 acre-feet per year but for the past years, our average allocation has been at approximately 700 acre-feet per year, due to surface spread credit.

2. Metropolitan Water District of Southern California (MWD): Imported water purchased from the MWD through the Foothill Municipal Water District is comprised of 30% - 100% of our annual supply for the period 1984 through 1991 due to the on-going problem with groundwater contamination.

In a worst case situation, the Raymond Basin Management Board would allow for the over production of the basin for 12, 24, 36 months. Each pumper in the basin would be responsible for its water quality.

TABLE 2 SUPPLY SOURCES AND WORST CASE SUPPLY PROJECTIONS

SOURCE	AVAILABLE SUPPLY UNDER NORMAL CONDITION	AVG USE 89-90	ACTUAL USE 1991	PROJECTED WORST CASE 1992	PROJECTED WORSE CASE 1993	PROJECTED WORST CASE 1994
Groundwater (including spread credit)	700	425	519	600	567	567
MWD	4,500	1,772	1,311	1,200	1,100	1,000
TOTAL	5,067	2,197	1,830	1,800	1,667	1,567

Groundwater: Lincoln Avenue is unable to pump its wells due to a high level of Trichloroethene (TCE) in our groundwater. We are in the process of negotiating to build a portable treatment plant. It is expected to be in operation by spring, 1992. If the drought continues to the year 1993, we should still be able to pump at least our 567 acre-feet allocation.

MWD: Our average purchase of imported water has been at 47% of maximum allowable amount under normal conditions Imported water is a supplemental supply to our groundwater.

Due to the extreme drought conditions that exist and the request of MWD and the Governor of State of California, Raymond Basin Management Board approved the Emergency Over-extraction Program (EOP). The purpose of EOP is to reduce demands on imported water supplies by prudently increasing production of available water in the Raymond Basin. Lincoln Avenue is permitted to over-extract our pumping right during a fiscal year by an amount not to exceed 10% of our adjudicated right.

SECTION 4 STAGES OF ACTION

Because we rely on Foothill/MWD for the majority of our water supply, we have adopted and implemented a mandatory water conservation rate based upon MWD's Incremental Interruption Conservation Plan (IICP). In general, the adopted rate requires water users to reduce water use to meet the Company's target goal that matches the Stages of MWD's IICP in effect.

SECTION 5 MANDATORY PROHIBITIONS ON WATER USE

Lincoln Avenue Water Company adopted by Resolution, a program of voluntary water conservation to reduce water consumption by ten percent (10%) during 1991. (See Appendix A)

In addition, Los Angeles County Ordinance No. 91-0046U, was adopted March 21, 1991 by the Los Angeles County Board of Supervisors prohibiting the wasting of water in the unincorporated area of Los Angeles County served by Lincoln Avenue. Violation of this Ordinance is punishable by a fine of up to $500.00. Lincoln Avenue supports the actions of the Board of Supervisors and assists in enforcing this Ordinance by notifying and educating our water users when non-compliance of this Ordinance is observed. (See Appendix B)

SECTION 6 CONSUMPTION LIMITS

Lincoln Avenue Water Company has recently increased and restructured the water rates to promote water conservation by discouraging water consumption that exceeds the company's target quantity goal. The new rates consist of three tiers. The first tier consumption reflects the company's twenty percent consumption reduction goal. The second tier is the penalty tier. Water users will pay two times the rate compared to the tier one rate. Tier three is the emergency water delivery tier. Water users whose consumption enters this tier will pay three times the amount compared to the tier one rate.

Currently water allocation for the first tier rate for residential accounts is 15 units per month or 374 gallons per day. The second tier consumption is 16 to 100 units. The third tier is 101 units or more.

Commercial and Governmental accounts receive an additional 25 units per month at the tier one rate.

The new rate is a drought contingency rate. The water allocation and/or water rates for each tier may be increased or decreased depending on the effectiveness of the Company's water conservation program and the availability of the water supply.

SECTION 7 PENALTIES AND CHARGES FOR EXCESSIVE USE

Lincoln Avenue Water Company's current water rate structure is designed to promote water conservation. A customer whose consumption exceeds the allocated usage pays two to three times the rate than a water user who is conserving.

TABLE 3 CURRENT WATER RATE STRUCTURE

TIER		RATE	RESIDENTIAL SINGLE FAMILY	RESIDENTIAL 2 DWELLINGS	GOVERNMENTAL/ COMMERCIAL
1	Company's target quant.	1.14	1 - 15	1 - 20	1 - 40
2	Penalty	2.28	16 - 100	21 - 100	41 - 100
3	Emergency	3.42	101 or more	101 or more	101 or more

SECTION 8 REVENUE AND EXPENDITURE ANALYSIS

The expenditures are projected to increase dramatically due to the anticipated rate increase imposed by MWD of approximately 30% per year for the next two years. MWD has also scheduled annual rate increases through the year 2000.

In anticipation of reduced sales and rate increases, Lincoln Avenue has determined that a rate increase of 17% will be necessary to fund our fixed operational expense and to continue our capital improvement programs. Since Lincoln Avenue depends upon MWD for 30% - 100% of our annual water supply - any rate increases imposed by MWD will ultimately be passed on to our water users.

SECTION 9 WATER USE MONITORING PROCEDURES

Lincoln Avenue Water Company's production is currently monitored on a daily basis. This production is compared to reduced allocations on a weekly basis to determine level of compliance with the required cutback in deliveries to customers.

SECTION 10 PLAN ADOPTION STANDARDS

Lincoln Avenue Water Company prepared the Water Shortage Contingency Plan. A public meeting was properly noticed in the Pasadena/Altadena Weekly. Copies of the draft plan were available for public review at our office. The plan was formally adopted by the Board of Directors on March 9, 1992 and submitted to the Department of Water Resources on March 11, 1992. (See Appendix C)

RESOLUTION

RESOLUTION OF THE BOARD OF DIRECTORS OF THE LINCOLN AVENUE WATER COMPANY ADOPTING A PROGRAM OF VOLUNTARY WATER CONSERVATION TO REDUCE WATER CONSUMPTION BY TEN PERCENT.

WHEREAS, the water required to supply water user needs must be imported from the State Water Project and the Colorado River; and

WHEREAS, the State Department of Water Resources and the Metropolitan Water District of Southern California have determined that, because of inadequate precipitation, supplies of the above mentioned imported water may be inadequate to meet normal water use needs in the ensuing months; and

WHEREAS, the critical nature of the water supply available to Lincoln Avenue Water Company makes it necessary to reduce water consumption by at least ten percent in order to protect and conserve the public water supply and to lessen the demand on the remaining water in storage; and

NOW, THEREFORE, the Board of Directors of the Lincoln Avenue Water Company resolves as follows:

1. Due to a serious statewide water shortage that exists as a result of four years of inadequate precipitation, it is necessary and in the best interests of the water users within Lincoln Avenue Water Company's service area to conserve and protect existing water supplies against waste and unreasonable uses by implementing water conservation measures to reduce consumption by at least ten percent.

2. A phased program beginning with voluntary measures to reduce consumption will best achieve the goal of conserving the water supply without causing unnecessary adverse economic consequences.

3. If voluntary measures do not achieve the goal of a ten percent reduction in water use, or if a severe drought condition is declared by the Metropolitan Water District of Southern California, the Board will consider such further actions as it then deems necessary and/or advisable.

4. The following measures are requested to be taken by all water users within Lincoln Avenue Water Company's service area to reduce individual water use by at least ten percent. We can achieve this goal by initiating the following actions:

   A. Do not hose down driveways, patios, sidewalks or other paved areas. Use a broom or blower instead.

   B. Install water saving devices on plumbing fixtures.

   C. Where possible, install and use spa and swimming pool covers to reduce evaporation.

D. Check faucets, toilets, and pipes, both indoors and outdoors for leaks and repair them immediately.

E. Irrigate lawns and landscaping before 10:00 a.m. or after 5:00 p.m. Do not overwater.

F. Adjust sprinklers and irrigation systems to avoid overspray, run-off, and waste. Avoid watering in rainy or windy weather.

G. Parks and school grounds should not be watered between the hours of 10:00 a.m. and 5:00 p.m.

H. Do not allow the hose to run while washing the car. Use a bucket or an automatic cutoff on the hose.

I. When installing new residential landscaping, plant low water demand trees and plants. Avoid large turf areas, which consume large quantities of water.

J. Developers of commercial and industrial properties are requested to use low water use landscaping plants and designs to provide for permanent water conservation.

5. The Board hereby directs staff to increase its public information and education measures by the following action:

Take steps to inform our customers that water conservation devices and informational materials are available at our office.

Robert W. Horner
President

MAY 14, 1990
Date

APPENDIX B
Adopted on April 22, 1991

RESOLUTION

RESOLUTION OF THE BOARD OF DIRECTORS OF THE LINCOLN AVENUE WATER COMPANY SUPPORTING THE ACTION OF THE LOS ANGELES COUNTY BOARD OF SUPERVISORS IN ADOPTING ORDINANCE NO. 91-0046U RELATING TO WATER CONSERVATION REQUIREMENTS FOR THE UNINCORPORATED AREA OF LOS ANGELES COUNTY SERVED BY THE LINCOLN AVENUE WATER COMPANY.

The Board of Directors of the Lincoln Avenue Water Company resolves as follows:

1. **Hose Watering Prohibition.**

   No person shall hose water or wash down any sidewalks, walkways, driveways, parking areas of other paved surfaces, except as is required for the benefit of public health and safety. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

2. **Watering of Lawns and Landscaping.**

   a. No person shall water or cause to be watered any lawn or landscaping between the hours of 10:00 a.m. and 5:00 p.m.

   b. No person shall water or cause to be watered any lawn or landscaping more than once a day.

   c. No person shall water or cause to be watered any lawn or landscaping to such an extent that runoff into adjoining streets, parking lots or alleys occurs due to incorrectly directed or maintained sprinklers or excessive watering.

   d. It shall be the duty of all persons to inspect all hoses, faucets and sprinkling systems for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

   e. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

3. **Indoor Plumbing and Fixtures.**

   a. It shall be the duty of all persons to inspect all accessible indoor plumbing and faucets for leaks and to cause all leaks to be repaired as soon as is reasonably practicable.

b. Willful violation hereof shall be an infraction punishable by a fine of $500.00.

4. **Washing Vehicles.**

No motor vehicle, boat, trailer or other type of mobile equipment may be washed, except at a commercial car wash or with reclaimed water, unless such vehicle is washed by using a hand-held bucket or a water-hose equipped with an automatic shutoff nozzle. No person shall leave a water hose running while washing a vehicle or at any other time. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

5. **Public Eating Places.**

No restaurant, hotel, cafeteria, cafe or other public place where food is sold or served shall serve drinking water to any customer unless specifically requested to do so by such customer. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

6. **Decorative Fountains.**

No person shall use water to clean, fill or maintain levels in decorative fountains, ponds, lakes, or other similar aesthetic structures unless such water flows through a recycling system. Willful violation hereof shall be an infraction punishable by a fine of $100.00 for the first infraction and $500.00 each for subsequent infractions.

This Resolution shall remain in effect until such time Ordinance No. 91-0046U is amended or terminated.

Due to the severity of the drought in the State of California, there is an immediate need to prohibit the wasting of water in the Los Angeles County unincorporated area served by the Lincoln Avenue Water Company to better utilize the available water supplies. This Resolution is urgently needed for the preservation of the public health, safety and general welfare and shall take effect immediately.

Robert W. Horner
President

April 22, 1991
Date

RESOLUTION

A RESOLUTION ADOPTING
THE WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the California Legislature enacted Assembly Bill 11X during 1991. Extraordinary Session of the California Legislature (an act to amend California Water Code Sections 10620, 10621, 10631, and 10652 and to add Section 10656 to the California Water Code, relating to water; and

WHEREAS, AB11X mandates that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to develop a Water Shortage Contingency Plan; and

WHEREAS, AB11X mandates that said Plan be filed with the California Department of Water Resources by January 31, 1992; and

WHEREAS, Lincoln Avenue Water Company is an urban water supplier providing water for municipal purposes to more than 3,000 customers, and therefore, prepared and made a Draft Water Shortage Contingency Plan available for public review, in compliance with the requirements of AB11X, and a properly noticed public hearing regarding said Draft Plan was held by the Board of Directors on March 9, 1992, and a Final Water Shortage Contingency Plan prepared;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Lincoln Avenue Water Company as follows:

1. The Water Shortage Contingency Plan is hereby adopted and filed in the office of Lincoln Avenue Water Company;

2. The Manager is hereby authorized and directed to file this Plan with the California Department of Water Resources;

3. The Manager is hereby authorized to declare a Water Shortage Emergency and implement this Water Shortage Contingency Plan when deemed necessary;

4. The Manager shall recommend to the Board of Directors regarding additional procedures, rules, and regulations to carry out effective and equitable allocation of water resources during a water shortage.

MANAGER-SECRETARY

March 9, 1992
DATE

LINCOLN AVENUE WATER COMPANY

ESTABLISHED 1883

March 11, 1992

Mr. Jonas Minton, Chief
Water Conservation Office
Department of Water Resources
1416 Ninth Street, Room 804
Sacramento, CA 95814

Dear Mr. Minton:

Enclosed are three copies of the Lincoln Avenue Water Company's Water Shortage Contingency Plan, prepared pursuant to the requirements of Assembly 11X. This plan was approved by the Board of Directors of the Company at a regular meeting held on March 9, 1992.

The Company's plan was prepared by Anne S. Asavavimol. She is available to answer any questions you may have about the Plan. The fax number is (818)798-9446.

Very truly yours,

ROBERT J. HAYWARD
MANAGER

Encl.

564 West Harriet Street • Altadena, California 91001-4537 • Telephone: (818) 798-9101

WATER USER'S MEETING
LINCOLN AVENUE WATER COMPANY

Notice is hereby given that the water user's meeting of the LINCOLN AVENUE WATER COMPANY, a corporation will be held at the office, 564 WEST HARRIET STREET, ALTADENA, CALIFORNIA on MONDAY, March 9, 1992, at 6:30 p.m. for the purpose of adopting the Water Shortage Contingency Plan.

ROBERT J. HAYWARD, MANAGER-SECRETARY
Published in the Pasadena/Altadena Weekly on March 6, 1992

Resolution No. LAWC071408

(7)

RESOLUTION NO. LAWC071408

RESOLUTION OF THE BOARD OF DIRECTORS OF LINCOLN AVENUE WATER COMPANY ESTABLISHING A MORATORIUM ON NEW WATER CONNECTIONS

WHEREAS, Lincoln Avenue Water Company (the "Company") is a mutual water company empowered to provide water service within its boundaries; and

WHEREAS, the Company adopted a Voluntary Water Conservation Program on August 13, 2007, encouraging its customers to take steps to reduce consumption by 10%; and

WHEREAS, the prolonged drought condition currently affecting California and the Colorado River region has continued through this past winter and spring; and

WHEREAS, the runoff available to the Company from precipitation in the local watershed has steadily decreased during the drought; and

WHEREAS, on June 4, 2008, California Gov. Arnold Schwarzenegger formally declared a condition of statewide drought, encouraging local water agencies to promote water conservation; and

WHEREAS, the Company's sole source of imported water, the Metropolitan Water District of Southern California, has declared a Water Supply Alert, urging local water purveyors to adopt and enforce drought regulations; and

WHEREAS, given the current drought conditions and the high likelihood of restricted water availability in the next 12 months, the Company finds it necessary to establish a temporary moratorium to the Company's distribution system.

NOW, THEREFORE, BE IT RESOLVED that the Company hereby issues a water supply alert and declares a drought condition to exist in its service area; and

BE IT FURTHER RESOLVED, that the Company finds that although a program of voluntary measures to reduce consumption has resulted in some reduction in water usage by its customers, further measures are necessary to avoid additional demands being placed on its system during the drought; and

BE IT FURTHER RESOLVED, that the Company hereby establishes a temporary moratorium on new connections and applications which lead to an added demand to the Company's water distribution system. Effective immediately, no Will-Serve Letters and/or Fire Flow Availability Information forms will be issued to developers seeking new meter connections or building permits for new construction. Existing Will-Serve Letters will be honored according to their terms. The Board will review the continued necessity for this moratorium no later than December 1, 2008, and thereafter every 6 months until such time as drought conditions no longer exist and the statewide water supply has improved.

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BE IT FURTHER RESOLVED, that the Company continues to urge its customers to:

a. Adjust sprinklers and irrigation systems to avoid over watering, overspray, runoff and waste;

b. Avoid watering lawns in the hot part of the day (i.e., between 9:00 a.m. and 6:00 p.m.) and on windy days;

c. Install new drought tolerant landscaping, low-water-using trees and plants and efficient irrigation systems;

d. Shut off decorative fountains, unless a water recycling system is used;

e. Not hose down driveways, sidewalks and other paved surfaces, except when necessary for health or sanitary reasons;

f. Install pool and spa covers to minimize water loss due to evaporation;

g. Not allow the hose to run while washing any vehicle and to use a bucket or a hose with an automatic cutoff valve;

h. Retrofit indoor plumbing fixtures with low-flow devices; and

i. Check faucets, toilets and pipes, both indoor and outdoor, including house service laterals and sprinkler piping, for leaks and repair them immediately, or upon demand of the Company.

BE IT FURTHER RESOLVED, that if critical water shortages occur and supplies of imported water are reduced, the Company will consider further action to curtail water use, including mandatory conservation measures to prevent water waste.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Lincoln Avenue Water Company held on July 14, 2008. – AMENDED October 12, 2009

Robert J. Gomperz, President

Robert J. Hayward, Secretary

Appendix D

60 Day Notification Letters

LINCOLN AVENUE WATER COMPANY
serving Altadena since 1896

564 WEST HARRIET STREET
ALTADENA, CALIFORNIA 91001-4571
(626) 798-9101
FAX (626) 798-9446

The mission of the Lincoln Avenue Water Company is to reliably provide to its customers and shareholders high quality water, service, and maintenance of the Company's resources in an environmentally and fiscally responsible manner.

March 15, 2011

Michael D. Antonovich
Supervisor, Fifth District
County of Los Angeles
869 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles CA 90012

RE: 2010 Urban Water Management Plan (Plan)

Dear Supervisor Antonovich:

The purpose of this letter is to notify you of a public hearing to review the updated Plan as required by the Urban Water Management Planning Act (Act). The Act requires urban water suppliers such as Lincoln Avenue Water Company (Lincoln) to notify city or county within its service area that we will be reviewing the Plan and considering amendments or changes to the Plan. The Act also requires Lincoln to submit a complete Plan to the Department of Water Resources every five years.

A public hearing will be held at 6:00 p.m. on May 20, 2011 at our main office located at 564 West Harriet Street, Altadena. A copy of the draft Plan is available for your review upon request. To request a copy, please contact Jennifer Betancourt, Water Quality Coordinator at 626.798.9101 extension 211.

Sincerely,
Lincoln Avenue Water Company

Robert J. Hayward
General Manager

Appendix E

Public Hearing Notice

Lincoln Avenue Water Company
Notice of Public Hearing – Draft Urban Water Management Plan
04/14/11, 04/21/11

NOTICE OF PUBLIC HEARING

Draft Urban Water Management Plan

The Lincoln Avenue Water Company (Lincoln) is required to adopt its Urban Water Management Plan (Plan) and to submit the Plan to the State Department of Water Resources by July 1, 2011. Accordingly, Lincoln has prepared its Draft Plan and its Board of Directors will conduct a public hearing at 6 p.m. on Friday, May 20, 2011 and consider adoption of the Draft Plan at the next scheduled Board meeting. The Public Hearing will be held at Lincoln Avenue Water Company at 564 W. Harriet St., Altadena, California. Copies of the Draft Plan are available for public inspection at the Lincoln office. Comments and/or questions regarding the Draft Plan should be directed to Robert J. Hayward, General Manager at (626)798-9101, extension 213. Copies of final adopted plan will be available for review at Lincoln's office starting August 2011.

Publish Pasadena Weekly
Dated 04/14/11, 04/21/11

Appendix F

Copy of Plan Adoption

RESOLUTION NO. LAWC 052011

RESOLUTION OF THE BOARD OF DIRECTORS OF LINCOLN AVENUE WATER COMPANY ADOPTING THE URBAN WATER MANAGEMENT PLAN

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

WHEREAS Lincoln Avenue Water Company (LAWC) is an urban supplier of water providing water to a population over 16,000; and

WHEREAS the Plan shall be periodically reviewed at least once every five years, and that LAWC shall make any amendments or changes to its plan which are indicated by the review; and

WHEREAS the Plan must be adopted by July 1, 2011, after public review and hearing, and filed with the California Department of Water Resources within thirty days of adoption; and

WHEREAS LAWC has therefore, prepared and circulated for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by Board of Directors on May 20, 2011; and

WHEREAS LAWC did prepare and shall file said Plan with the California Department of Water Resources by July 1, 2011;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of LAWC that the 2010 Urban Water Management Plan is hereby adopted on May 20, 2011 and the General Manager is hereby authorized and directed to file the 2010 Urban Water Management Plan with the California Department of Water Resources within 30 days of this date.

John C. Clairday, President

Robert Gomperz, Vice President

Lawrence Duncan, 1st Vice President

Lester Allen, Treasurer

Bruce Morrison, Assistant Secretary

8001 Irvine Center Drive, Suite 1100
Irvine, CA 92618
949.450.9901 Fax 949.450..9902

MALCOLM PIRNIE | ARCADIS

The Water Division of ARCADIS