

Final

2010 Urban Water Management Plan

April 2011



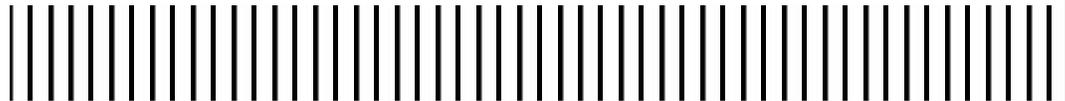


Valley Water Company

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2010 Urban Water Management Plan

April 2011



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Acronyms Used in the Report

AP	Allocation Plan
BMP	Best Management Practice
CDPH	California Department of Public Health
cfs	cubic feet per second
CII	Commercial Industrial Institutional
CRA	Colorado River Aqueduct
CUWCC	California Urban Water Conservation Council
DBPs	Disinfection Byproducts
DMM	Demand Management Measure
DOE	Department of Energy
DWR	Department of Water Resources
ETo	Evapotranspiration
FHCUP	Foothill Conjunctive Use Program
FMWD	Foothill Municipal Water District
HECW	High Efficiency Clothes Washer
HET	High Efficiency Toilet
IID	Imperial Irrigation District
IRP	Integrated Resources Plan
IWA	International Water Association
JPL	Jet Propulsion Laboratory
JWPCP	Joint Water Pollution Control Plant
Kinneloa	Kinneloa Irrigation District
LACSD	Sanitation Districts of Los Angeles County
LAGWRP	Los Angeles/Glendale Water Reclamation Plant
MCL	Maximum Contaminant Level
Metropolitan	Metropolitan Water District of Southern California
MGD	Million Gallons per Day
MOU	Memorandum of Understanding
MTBE	Methyl Tertiary-Butyl Ether
NDMA	N-nitrosodimethylamine
OEHHA	Office of Environmental Health Hazard Assessment
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
SDCWA	San Diego County Water Authority
SWP	State Water Project
TDS	Total Dissolved Solid
TOC	Total Organic Carbon
ULARA	Upper Los Angeles River Area
ULFT	Ultra-Low-Flow Toilet
USEPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
VWC	Valley Water Company
WSAP	Water Supply Allocation Plan

Executive Summary

This report serves as the 2010 update of the Valley Water Company's (VWC) 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 due to DWR by August 1, 2011.

This 2010 UWMP is an update of VWC's 2005 UWMP. The intent of this plan is to provide the California Department of Water Resources (DWR) with information on the present and future water resources and demands and provide an assessment of VWC's water resource needs. Specifically, this 2010 UWMP provides water supply planning for the 25-year planning period from 2010 to 2035 in 5-year increments; identifies and quantifies adequate water supplies for existing and future demands during normal, dry and multiple-dry years; evaluates demand management measures; addresses water supply contingency planning; and describes strategies to expand supply sources such as desalination and recycled water.

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

VWC provides water to a population of 9,900 throughout its 2,400 acre service area in the City of La Cañada Flintridge. VWC receives its water from two main sources, the Raymond Groundwater basin and imported water from the Foothill Municipal Water District (FMWD). Groundwater is pumped from three wells, and imported water is treated at the Weymouth Treatment Plant and is delivered to VWC.

Water Demand

Currently, the total water demand for retail customers served by VWC is approximately 3,155 acre-feet annually consisting of 2,330 acre-feet of imported water and 825 acre-feet of local groundwater. VWC is projecting a 1% increase in demand in the next 25 years accompanying a projected 13% population growth.

VWC has selected to comply with **Option 1** of the SBx7-7 compliance options. Under Compliance Option 1, VWC's 2015 interim water use target is 325.5 GPCD and the 2020 final water use target is **289.3 GPCD**.

Water Sources and Supply Reliability

VWC's main sources of water supply are groundwater from the Raymond Groundwater Basin and imported water from Metropolitan through FMWD. Currently, VWC relies on 26% groundwater and 74% imported water. It is projected that through 2035, the water supply mix will remain roughly the same. 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. VWC 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 3-12, Table 3-13, and Table 3-14, respectively.

Future Water Supply Projects

VWC does not have any planned water supply projects or programs and VWC does not have opportunities to directly develop desalinated supplies. It does not border the ocean and cannot participate directly in ocean desalination. However, VWC 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 VWC 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 reviews present and future water supplies and demands and provides an assessment of the VWC water resource needs. Specifically, this document will provide water supply planning for a 25-year planning period in 5-year increments. The plan identifies water supplies for existing and projected demands, quantifies water demands during normal year, single-dry year, and multiple-dry years, and identifies supply reliability under the three hydrologic conditions. This document 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 include 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 historic 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 VWC's water system. The UWMP Checklist has been completed, which identifies the location of Act requirements in this Plan and is included as Appendix A.

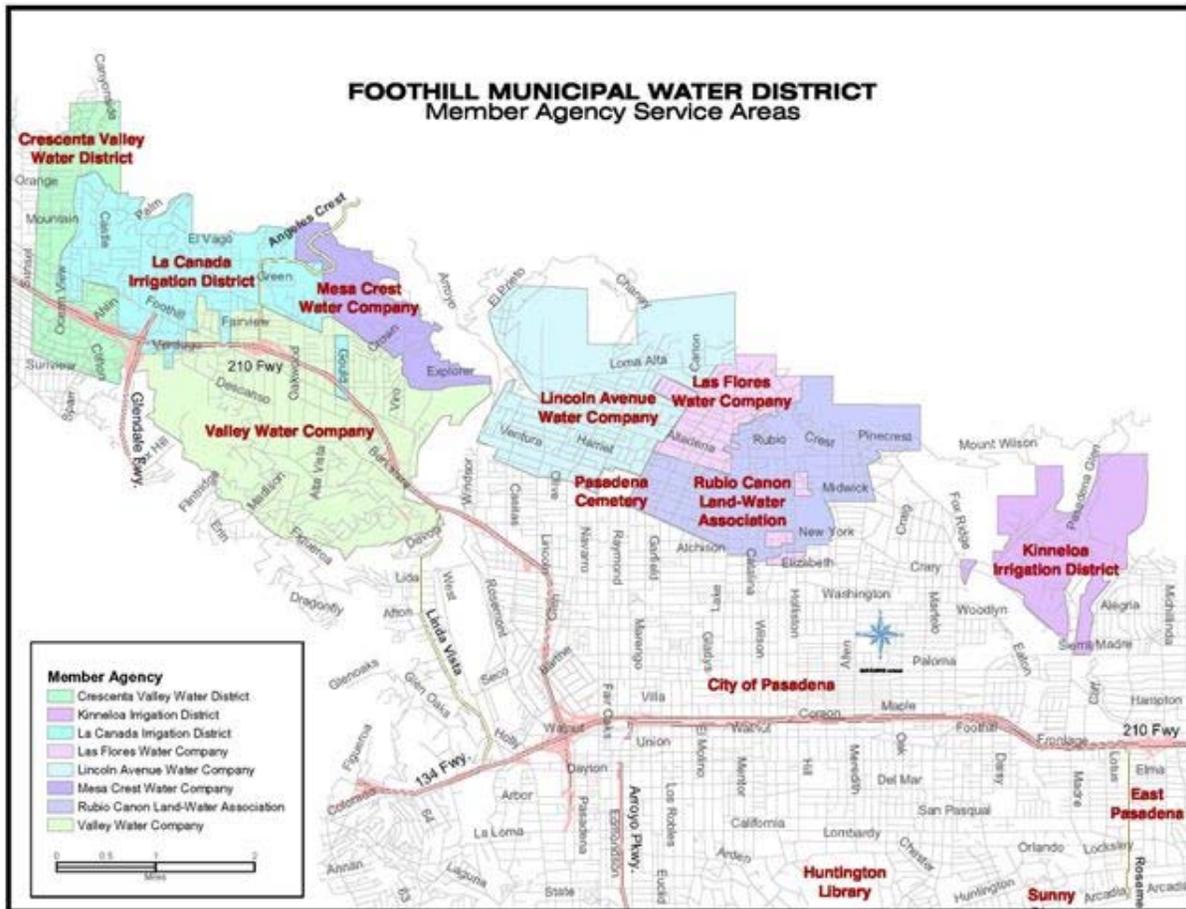


Figure 1-1: Regional Location of Urban Water Supplier

1.2. Agency Overview

Incorporated in 1910, VWC was formed primarily to provide a reliable water supply to support the agricultural activities in the area, with providing a potable drinking water supply a lesser responsibility. As time passed, the area transformed from primarily an agricultural water user to a domestic water user. This transition accelerated following World War II, when housing development and a population boom occurred in the Foothill area. Currently VWC serves only potable water for residential, light commercial and institutional uses within the City of La Cañada Flintridge.

VWC is a non-profit mutual water company, owned by its customers, governed by a seven member board of directors that is elected by the stockholders of the Company. The Board meets bi-monthly at VWC's office to review and direct the business of the Company. The Management of VWC is under the direction of its General Manager, who serves at the discretion of the Board.

1.3. Service Area and Facilities

1.3.1. VWC's Service Area

VWC serves approximately 9,900 persons within a 2,400-acre service area in the City of La Cañada Flintridge. The City of La Cañada Flintridge is located in Los Angeles County, approximately 13 miles northeast of downtown Los Angeles. The City encompasses approximately 8.6 square miles and is surrounded by the City of Pasadena to the east, the city of Glendale to the south, the Angeles National Forest to the north, and the unincorporated county areas of La Crescenta and Montrose to the west. The City is served by three water purveyors: VWC, Mesa Crest Water Company, and La Cañada Irrigation District.

The portion of the City within VWC's service area is nearing full development and, aside from a narrow strip of commercial development along Foothill Boulevard, is devoted almost exclusively to residential development. There are approximately 42 acres of mountainous area which are as yet undeveloped.

1.3.2. VWC's Water Facilities

VWC has about 57 miles of service mains with 3,585 active service connections. Its two sources of supply are local groundwater pumped from VWC's three wells in the Raymond Basin and imported water purchased from the Metropolitan Water District of Southern California (Metropolitan) via Foothill Municipal Water District (FMWD). Approximately 25 percent of VWC's water supply is groundwater, while imported water provides the remaining 75 percent.

2. Water Demand

2.1. Overview

Currently, the total water demand for retail customers served by VWC is approximately 3,155 acre-feet annually of potable water. In the last five years, VWC's water demand has decreased by about 15% while the number of connections remained the same. With its diligence in the promotion of water conservation as well as financial incentives to customers to retrofit their homes and businesses with water efficient devices and appliances, VWC is projecting a flattening demand trend in the next 25 years despite a projected 13% population growth.

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 percent reduction in demands (from a historical baseline) by 2020. Due to water conservation efforts in the past decade, VWC is on its way to meeting this requirement on its own.

This section will explore in detail VWC'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 VWC'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 VWC's service area are discussed below.

2.2.1. Climate Characteristics

VWC is located within the South Coast Air Basin. The basin is a 6,600 square-mile area bounded by the Pacific Ocean to the west, and the San Gabriel Mountains, San Bernardino Mountains, and San Jacinto Mountains to the north and east. The basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties.

VWC generally experiences warm summers and short, mild winters.

The average summer and winter temperatures are 75°F and 65°F, respectively, and the average annual rainfall is just less than 22 inches (Table 2-1). The region is subject to wide variations in annual precipitation, and also experience periodic wildfires. The average evapotranspiration (ET_o) is 54 inches per year which is 2.5 times the annual average rainfall. This translates to a high demand for landscape irrigation for homes, commercial properties, parks, and golf courses. Moreover, a region with low rainfall like Southern California is also more prone to droughts. Average annual ET_o, temperatures and rainfall are shown in Table 2-1.

Table 2-1: Climate Characteristics

	Standard Monthly Average ET _o (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 VWC’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

VWC serves a population of 9,900. The population within VWC’s service area is expected to increase by 13% in the next 25 years, or 0.5% annually. The area is basically fully developed. Table 2-2 shows the population projections for the next 25 years. Due to proactive water conservation efforts, future water demands are expected to increase at a much lower rate than the population growth. In fact, VWC’s demands are expected to stabilize after the year 2020 as discussed later in Section 2.5.

Table 2-2: Population – Current and Projected

	2010	2015	2020	2025	2030	2035-opt
Service Area Population	9,900	10,150	10,406	10,669	10,938	11,211

2.2.3. Land Use

Prior to incorporation in 1976, the La Cañada Flintridge area was already a community that was almost fully developed and well-established.

Prior to 1975, limited growth had been the result of insufficient water supply and water rights. Today, limited growth in La Cañada Flintridge is an adopted policy intended to retain the community's natural and semi-rural character. In addition, the presence of environmental and infrastructure constraints (e.g. hillside topography, wildfire hazards, lack of sanitary sewers) on much of the remaining vacant land in the City precludes extensive development.

In 1980, the City's total population was 20,153; in 1990, the total was 19,378. Over 90% of the City's developed land consists of single-family residential uses, generally on large lots (one-quarter acre or more) with heavily landscaped streets. Regional and local commercial uses are limited to some portions of Foothill Boulevard and Verdugo Boulevard, and the City does not have any industrial development. NASA's Jet Propulsion Laboratory, located in the easternmost part of the community, is the City's largest employer. Growth continues to be limited to small residential subdivisions, residential infill, and recycling of commercial uses on Foothill Boulevard.

The articles of incorporation of VWC were signed September 27, 1910, and the Company assumed responsibility for the affairs of VWC of La Cañada on June 13, 1911.

A history of the VWC entitled *Valley Water Company History* was published in 1977. This work, compiled and written by Mr. Al Harrel, contains data on system evolution and operational characteristics from 1910 to 1977.

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 VWC’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

VWC has maintained approximately 3,583 customer connections to its potable water distribution system since 2005. VWC is expected to maintain the same numbers of connections through to 2035. All connections in VWC’s service area are metered.

Approximately 95% percent of VWC’s water demand is residential. The VWC service area is only 5% commercial and less than 1% institutional. A major employer in the area is Jet Propulsion Laboratory, which has its own water system supplied by the City of Pasadena. There are no significant agricultural activities in VWC's service area. A 1.4% increase in water demand between 2010 and 2035 is anticipated for VWC’s service area while population is projected to increase by 13% over the same period.

Tables 2-3 and Table 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 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	3,384		200			3,584
2010	3,383		200			3,583
2015	3,385		200			3,585
2020	3,385		200			3,585
2025	3,385		200			3,585
2030	3,385		200			3,585
2035	3,385		200			3,585

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	3,542		181			3,723
2010	2,994		161			3,155
2015	3,000		161			3,161
2020	3,040		160			3,200
2025	3,040		160			3,200
2030	3,040		160			3,200
2035	3,040		160			3,200

2.3.2. Residential

Single family residential water use accounts for the majority of VWC’s water demands. The residential sector represents 95% of VWC’s total demand. Water consumption by the residential sector is projected to remain at about 95% through the 25-year planning horizon.

In VWC’s service area, total system per capita water use averages about 362 gallons per capita per day (GPCD). Based upon water demand studies conducted by Metropolitan, it is estimated that, on average, about 72% of the water used in Southern California is for indoor water needs. However, because of the predominance of residential property within VWC’s service area, and the substantially larger than average residential lot sizes and predominance of irrigated landscape, we have estimated that indoor water use in VWC’s service area represents only 30% of total water use.

2.3.3. Non-Residential

VWC has a mix of commercial uses (markets, restaurants, etc.), public entities (such as schools, fire stations and government offices), office complexes, light industrial, warehouses and facilities serving the public. In 2010 non-residential demand was approximately 5 percent of the overall demand and is expected to remain so through 2035. Commercial, industrial, and institutional (CII) uses (excluding large landscape) represent a combined 5 percent of VWC’s total demand.

2.3.4. Other Water Uses

2.3.4.1. Sales to Other Agencies

VWC 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).

VWC’s non-revenue water accounts for about 4 percent of VWC’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	140	140	140	140	140	140	140
Total	140	140	140	140	140	140	140

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 Bay 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 use reduction. The retail water supplier is to select one of the four target-setting methods. The retail agency may choose to comply with 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 for the 2010, 2015, and 2020 UWMPs. An agency that does not comply with SBx7-7 requirements will not be eligible for a water grant or loan from the state on and after July 16, 2016.

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 SBx7-7 requirement options. The four options are:

- *Option 1* requires a simple 20 percent 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 a Model Landscape Ordinance
 - 10 percent reduction in baseline CII water use
- *Option 3* requires achievement of 95% of the applicable state hydrologic region target as set forth in the State's 20x2020 Water Conservation Plan.
- *Option 4* is under development by DWR.

VWC's Compliance Option Selection

VWC has selected Compliance **Option 1**.

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 VWC 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 VWC's retail delivery in 2008; therefore, a 10-year instead of a 15-year rolling average was calculated. VWC's baseline water use is **361.6 GPCD**, which was obtained from the 10-year period July 1, 1995 to June 30, 2005.

Tables 2-6 and 2-7 provide the base period ranges used to calculate the baseline water use for VWC 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 VWC, 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 to 15-year range

Highest Available Baseline [1]		Beginning	Ending
10 Year Avg		July 1, 1995	June 30, 2005

Fiscal Year Ending	Service Area Population	Gross Water Use (gallons per day)	Daily Per Capita Water Use
1996	9,229	3,251,431	352
1997	9,275	3,411,642	368
1998	9,322	2,931,338	314
1999	9,369	3,472,402	371
2000	9,416	3,576,210	380
2001	9,463	3,374,450	357
2002	9,511	3,672,510	386
2003	9,559	3,379,039	354
2004	9,607	3,747,349	390
2005	9,655	3,331,465	345
Base Daily Per Capita Water Use:			361.6

[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	9,607	3,747,349	390
2005	9,655	3,331,465	345
2006	9,703	3,558,123	367
2007	9,752	3,795,209	389
2008	9,801	3,604,921	368
Base Daily Per Capita Water Use:			371.8

[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 1, the simple 20 percent reduction from the baseline, VWC's 2015 interim water use target is 325.5 GPCD, and the 2020 final water use target is **289.3 GPCD** as summarized in Table 2-8.

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

	Baseline	2015 Target	2020 Target
Option 1 - Simple 20% Reduction	361.6	325.5	289.3

2.5. Demand Projections

2.5.1. 25 Year Projections

One of the main objectives of this UWMP is to provide VWC’s future water demand outlook. As discussed above, currently, VWC’s total annual water demand is 3,155 acre-feet comprising of 26% local groundwater, and 74% imported water.

As illustrated in Table 2-9, VWC’s water demand is expected to increase by only 1% in the next 25 years, while population within VWC’s service area is expected to increase by 13%. Demand is projected to remain stable at 3,200 AFY after 2020 as a result of water conservation efforts to comply with SBx7-7.

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.))	2,330	2,331	2,400	2,400	2,400	2,400
Raymond Basin GW	825	830	800	800	800	800
Total	3,155	3,161	3,200	3,200	3,200	3,200

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

Table 2-10: VWC’s Demand Projections Provided to Wholesale Suppliers (AFY)

Wholesaler	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
FMWD	2,331	2,400	2,400	2,400	2,400

2.5.2. Low Income Household Projections

One significant change to the UWMP Act since 2005 is the requirement for retail water suppliers to include water use projections for single-family and multi-family residential housing needed for lower income and affordable households. This requirement is to assist

the retail suppliers in complying with the requirement under Section 65589.7 of the Government Code that suppliers grant a priority for the provision of service to housing units affordable to lower income households. A lower income household is defined as a household earning 80% of the County of Los Angeles median income or less.

In order to identify the planned lower income housing projects within its service area, DWR¹ recommends that retail suppliers may rely on Regional Housing Needs Assessment (RHNA) or Regional Housing Needs Plan information developed by the local council of governments, the California Department of Housing and Community Development.

The RHNA is an assessment process performed periodically as part of Housing Element and General Plan updates at the local level. Regional Council of Governments in California are required by the State Housing Element Law enacted in 1980 to determine the existing and projected regional housing needs for persons at all income levels. The RHNA quantifies the need for housing by income group within each jurisdiction during specific planning periods. The RHNA is used in land use planning, to prioritize local resource allocation and to help decide how to address existing and future housing needs. The RHNA consists of two measurements: 1) existing need for housing, and 2) future need for housing.

The current RHNA planning period is January 1, 2006 to June 30, 2014 completed by the Southern California Association of Governments (SCAG) in 2007. The next RHNA which will cover the planning period of January 1, 2011 to September 30, 2021 is not expected to be completed until fall of 2012; therefore, the 2007 RHNA will be used for the purpose of this 2010 UWMP.

Based on the 2007 Final Regional Housing Need Allocation Plan², the projected housing need for low and very low income households (hereafter referred to as low-income) in the VWC's service area (the City of La Cañada Flintridge) are 26.2% and 16.7%, respectively or 42.9% combined.

Therefore, from inference, it is estimated that approximately 42.9% of the projected water demands within the City's service area will be for housing needed for low income households. Table 2-11 provides the projected water needs for low income household. The projected water demands shown here represent 42.9% of the projected residential water demand provided in Table 2-4 above. VWC does not have a breakdown between

¹ California Department of Water Resources, Guidebook to Assist Urban Water Suppliers to Prepare a 2010 UWMP, Final (March 2011)

² Southern California Association Governments, Final Regional Housing Need Allocation Plan for Jurisdictions within the Six County SCAG Region (July 2007)

single family and multifamily, however, almost all of VWC's residential customers are single family residents.

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	3,161	3,200	3,200	3,200	3,200
Total Residential Demand	3,000	3,040	3,040	3,040	3,040
Total Low Income Households Demand	1,287	1,304	1,304	1,304	1,304

3. Water Sources and Supply Reliability

3.1. Overview

La Cañada Flintridge is served by three water purveyors: Valley Water Company, Mesa Crest Water Company, and La Cañada Irrigation District. VWC and La Cañada Irrigation District have ground water pumping rights within the Raymond Ground Water Basin (See Appendix B). All of the water purveyors obtain imported water supplies through FMWD.

VWC serves the southern half of the City and has the largest service area of the three water purveyors - VWC relies on approximately 70 percent imported water and 30 percent local well water pumped from the Monk Hill portion of the Raymond Ground Water Basin. The imported water is purchased from FMWD, which purchases the water from Metropolitan.

The Raymond Basin has an area of approximately 40 square miles, bounded by the San Gabriel Mountains to the north, the San Rafael Hills to the west, and the Raymond Fault on the south and east. The majority of La Cañada Flintridge is located within the Raymond Basin's boundaries.

Figure 3-1 provides a projection of VWC's water supply sources for the next 25 years. Groundwater supply is projected to account for approximately 26% of VWC's total water supply in 2010. Imported water from FMWD/Metropolitan meets the remaining demand.

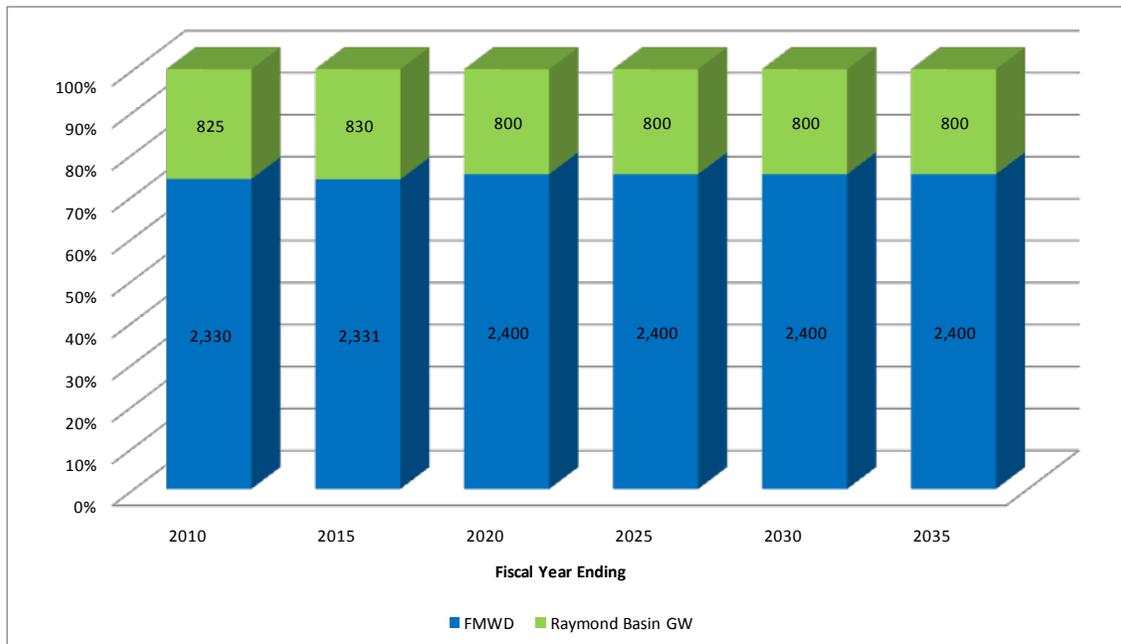


Figure 3-1: Current and Projected Water Supplies (AFY)

The following sections provide a detailed discussion of VWC’s two main water sources as well as projections to VWC’s future water supply portfolio for the next 25 years. Moreover, this compares projected supply and demand under various hydrological conditions to determine VWC’s service reliability for the 25 year planning horizon. This section satisfies the requirements of § 10631 (b) and (c), and 10635 of the Water Code.

3.2. Imported Water

VWC currently relies on 2,330 AFY of imported water wholesaled by Metropolitan through FMWD to supplement local groundwater. Imported water represents approximately 74% of VWC’s total water supply. Metropolitan’s has two principal sources of water- the Colorado River via the Colorado River Aqueduct (CRA) and the Lake Oroville watershed in Northern California through the State Water Project (SWP). The 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

Average Year Supply Capability¹ 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 Metropolitan⁵	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 Capability¹ 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 Metropolitan⁵	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 Capability¹ 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 Metropolitan⁵	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. VWC’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, VWC’s wholesale supplier projects 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 VWC 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	2,331	2,400	2,400	2,400	2,400

3.3. Groundwater

The Raymond Basin underlies VWC's service area, and VWC produces an annual decreed right of 797 acre-feet from the Raymond 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. In addition, surface runoff in

some areas is released into spreading basins for additional percolation into the ground water basins. The Los Angeles County Department of Public Works operates these recharge facilities. In addition to this natural recharge, VWC has utilized the in-lieu method to store water in the Raymond Basin, as well as two Aquifer Storage Recovery (ASR) 800 gpm wells for injection of imported water into the basin. These ASR wells have the capacity to inject approximately 1,000 acre-feet of water per year.

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 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.

VWC's existing ground water production capacity is approximately 4,000 gallons per minute. Currently, VWC can meet 26% of their annual water needs via pumping well water from the Raymond Basin.

Table 3-5: Groundwater Pump Rights (AFY)

Basin Name	Pumping Right (AFY)
Raymond Basin	797
Total	797

Table 3-6 shows VWC'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)

Basin Name(s)	Fiscal Year Ending				
	2005	2006	2007	2008	2009
Raymond Basin GW	1,619	1,093	1,432	1,265	899
% of Total Water Supply	43%	27%	34%	31%	25%

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

Table 3-7: Amount of Groundwater Projected to be Pumped (AFY)

Basin Name(s)	Fiscal Year Ending				
	2015	2020	2025	2030	2035-opt
Raymond Basin GW	825	830	800	800	800
% of Total Water Supply	26%	26%	25%	25%	25%

3.4. Supply Reliability

3.4.1. 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. VWC 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 augments 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 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 3-8 shows the reliability of the wholesaler’s supply for single dry year and multiple dry year scenarios.

Table 3-8: Wholesaler Supply Reliability - % of Normal AFY

Wholesaler Sources	Single Dry	Multiple Dry Water Years		
		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 3-9 shows the basis of water year data used to predict drought supply availability.

Table 3-9: 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

3.4.2. Factors Contributing to Reliability

The Act requires a description of the reliability of the water supply and vulnerability to seasonal or climatic shortage. VWC 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 3-10 shows the factors resulting in inconsistency of supply.

Table 3-10: 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.

3.4.2.1. 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 delivered, treated and 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, leading 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 - VWC’s water system is and has been in compliance with all CDPH water quality standards. Groundwater quality does not impact water supply.

Table 3-11 shows the impact in acre-feet per year that water quality would have on supply.

Table 3-11: 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

3.4.3. Normal-Year Reliability Comparison

VWC 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 VWC from existing water transmission facilities. Table 3-12 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 3-12: Projected Normal Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	3,161	3,200	3,200	3,200	3,200
Raymond Basin GW	830	800	800	800	800
Imported	2,331	2,400	2,400	2,400	2,400
Total Supply	3,161	3,200	3,200	3,200	3,200

3.4.4. Single Dry-Year Reliability Comparison

VWC has documented that its available supplies are 100% reliable under 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 3-13 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 3-13: Projected Single-Dry Year Water Supply and Demand (AFY)

	Fiscal Year Ending				
	2015	2020	2025	2030	2035
Total Demand	3,490	3,533	3,533	3,533	3,533
Raymond Basin GW	830	800	800	800	800
Imported	2,660	2,733	2,733	2,733	2,733
Total Supply	3,490	3,533	3,533	3,533	3,533

3.4.5. Multiple Dry-Year Reliability Comparison

VWC 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 3-14 shows supply and demand projections under multiple dry year conditions.

Table 3-14: Projected Multiple Dry Year Period Supply and Demand (AFY)

		Fiscal Year Ending				
		2015	2020	2025	2030	2035
First Year Supply	Total Demand	3,490	3,533	3,533	3,533	3,533
	Raymond Basin GW	830	800	800	800	800
	Imported	2,660	2,733	2,733	2,733	2,733
	Total Supply	3,490	3,533	3,533	3,533	3,533
Second Year Supply	Total Demand	3,423	3,466	3,466	3,466	3,466
	Raymond Basin GW	830	800	800	800	800
	Imported	2,593	2,666	2,666	2,666	2,666
	Total Supply	3,423	3,466	3,466	3,466	3,466
Third Year Supply	Total Demand	3,161	3,200	3,200	3,200	3,200
	Raymond Basin GW	830	800	800	800	800
	Imported	2,331	2,400	2,400	2,400	2,400
	Total Supply	3,161	3,200	3,200	3,200	3,200

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.

VWC recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. Demand Management Measures as defined by the Act correspond to the California Urban Water Conservation Council's (CUWCC's) Best Management Practices (BMPs). VWC 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 VWC and how VWC 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 a member agency of FMWD, VWC 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. VWC works cooperatively with FMWD for technical and financial support needed to implement the DMMs.

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

Table 4-1: VWC’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

In concert with FMWD, VWC provides any support possible to local water users in conducting water audits and surveys on their properties. VWC provides water audits and surveys to its customer in response to high water bill complaints and provides suggestive measures for high water users. In addition, Metropolitan provides financial support for Residential Water Surveys to its service area.

VWC 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-based irrigation controllers (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, 6 WBIC and 17 rotating nozzles rebates were given out to residential customers representing a combined life time water savings of 2.85 AF. Between 2008 and 2010, 9,692 sq. ft. of turf grass was replaced by synthetic turf translating to a savings of 1.36 AFY or a life time savings of 13.6 AF.

4.2.2. DMM 2: Residential Plumbing Retrofit

In concert with FMWD, VWC distributes showerheads, aerators, and toilet tank leak detection tablets at all times. In 1999, FMWD implemented an agreement with Metropolitan for participation in a residential ultra low-flush toilet retrofit and a CII retrofit incentive project. VWC will continue to distribute plumbing retrofit devices; however, VWC has no method to quantify actual water savings.

In concert with FMWD, VWC also works with the local planning department of the City of La Cañada Flintridge to assure enforcement of the ultra low-flush toilet (ULFT) installation requirements for new construction and supports the prohibition of sale of toilets using more than 1.6 gallons per flush. VWC maintains discussion with the City of La Cañada Flintridge regarding installation of water saving devices for new residential construction.

Between 2004 and 2009, a total of 43 ULFTs were distributed under this program to single-family and multi-family homes within VWC's service area representing a cumulative water savings of 6.97 acre-feet. The high efficiency toilet rebate program has since replaced the ULFT program as discussed under DMM 14.

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

VWC has continuously conducted water audits and leak detection and repair throughout its service area. Daily analysis of water produced versus water delivered is conducted, providing a daily audit of losses. VWC maintains a distribution system water loss factor of less than 4%.

4.2.4. DMM 4: Metering with Commodity Rates

All deliveries by VWC are metered deliveries, using commodity rate components.

4.2.5. DMM 5: Large Landscape Conservation Programs and Incentives

VWC supports large landscape conservation through FMWD/Metropolitan's regional programs including:

Save Water Save A Buck Rebate Program – As a member agency of FMWD, VWC takes part in the Save Water Save a Buck Rebate Program which offers financial incentives to CII customers who purchase approved WBIC and rotating nozzles. Between 2004 and 2010, the total rotating nozzle program participation includes 17 residential customer rebates representing a water savings of 0.068 AFY or a life time savings of 0.34 acre-feet. A total of 6 WBIC rebates have been given out to residential customers and 3 WBIC rebates to commercial customers translating to 1.87 AFY of water savings or a lifetime savings of 18.7 acre-feet, collectively.

Synthetic Turf Rebate Program – On behalf of its member agencies, FMWD provides matching incentives for customers to install synthetic turf. VWC’s participation in the synthetic turf rebate program resulted in the installation of 9,692sq. ft. of synthetic turf representing 1.36 AFY of savings or a lifetime savings of 13.6 acre-feet.

California Friendly Landscape Training – On behalf of its member agencies, FMWD supports 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.

VWC distributes brochures to encourage use of drought-tolerant plants for landscaping residential and commercial developments. VWC is using billing inserts to encourage the use of weather-based irrigation controllers. VWC will continue to encourage landscape water conservation through distribution of brochures and local newspaper ads.

Additionally, VWC maintains vigilance with high end water users and offers suggestions to decrease outdoor water use. Program effectiveness is evaluated mostly by overall system demand. VWC has no method to evaluate the effectiveness of this BMP individually, but believes that this program is in the public's interest.

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

VWC 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, VWC has given out 111 high-efficiency washing machine rebates to its customers. This equates to a water savings of 11.77 acre-feet to date.

4.2.7. DMM 7: Public Information Programs

In concert with FMWD, VWC promotes water conservation and other resource efficiencies in coordination with Metropolitan. VWC distributes public information directly to the public upon request, providing literature, brochures, posters, videos, etc. In addition, FMWD maintains a library of water resource education conservation films and videos for loan to local organizations.

VWC will continue to provide public information services and materials to remind the public about water and other resource issues. VWC will continue to show a customer's water usage in comparison to previous year's usage on customer billing statements. In addition, VWC plans to utilize bill inserts, newsletters, and/or brochures in order to provide information to the public about water resources and conservation.

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 ³	\$25,000	\$25,000	\$25,000	\$25,000

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

VWC’s service area and FMWD’s service area as a whole are mainly residential with only very light commercial and no industrial water use within these boundaries. Institutional accounts consist of predominantly local schools and churches. In 1999, FMWD and its distributing member agencies implemented an agreement with Metropolitan for participation in a CII retrofit incentive project.

³ \$24,950 budget is inclusive of all outreach programs

Currently, FMWD and its member agencies, including VWC, participate in Metropolitan’s Save Water Save A Buck Rebate Program. This program offers rebates for various water efficient devices to CII customers as described below.

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

VWC is a retail water agency. Therefore, the DMM does not apply. RCWLA 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

VWC's water rates include a three-tier inclining block rate. VWC’s current rate structure is presented in Table

Table 4-4: Conservation Pricing

Rate Structure	
Basic-Monthly	
Meter Size	Service Charge
¾-inch	\$10.18
1-inch	\$15.95
1 ½-inch	\$44.00
2-inch	\$68.75
4-inch	\$143.00
6-inch	\$220.00
6-inch	\$297.00
8-inch	\$357.50
Commodity Rates	
1st 50 units (ccf)	\$3.206 each
51 to 100 units	\$3.502
Over 100 units	\$4.096

4.2.12. DMM 12: Water Conservation Coordinator

VWC has designated the General Manager as VWC's water conservation coordinator. This is not a full-time position, but time is devoted to coordination and oversight of conservation programs, particularly with FMWD, with Metropolitan, and BMP implementation. The coordinator coordinates FMWD's and Metropolitan's programs within VWC.

4.2.13. DMM 13: Water Waste Prohibition

VWC has adopted a No Waste Ordinance to prohibit wasteful use of water in its service area. The ordinance specifies restrictions on water use during normal times as well as restrictions during a declared Water Shortage Emergency. For example, the ordinance prohibits the following, landscape irrigation using potable water between 10 a.m. and 6 p.m.; washing of walkways and driveways except where necessary for public health or safety; washing of vehicles without a shutoff nozzle or bucket.

Additionally, VWC will support measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains. VWC will support efforts to develop state law regarding exchange-type water softeners that would:

1. Allow the sale of only more efficient, demand-initiated regenerating (DIR) models;
2. Develop minimum appliance efficiency standards that a) increase the regeneration efficiency standard to at least 3,350 grains of hardness removed per pound of common salt used; and b) implement an identified maximum number of gallons discharged per gallon of soft water produced;
3. Allow local agencies, including municipalities and special districts, to set more stringent standards and/or to ban on-site regeneration of water softeners if it is demonstrated and found by the agency governing board that there is an advance effect on the reclaimed water or ground water supply;
4. VWC will encourage including water softener checks in home water audit programs and will supply brochures, when available, that include information about DIR and exchange-type water softeners.

In addition, VWC has implemented the Water Conservation Alert System in concert with neighboring water agencies and FMWD in order to keep the community aware of the water supply status, and to encourage water conservation.

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

VWC, 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 high efficiency toilets (1.28 gallons per flush) for both residential and CII customers. The ULFT portion of this program concluded in June 2009. VWC currently offers HETs to residential customers via FMWD and Metropolitan rebate programs.

Between 2004 and 2010, 43 ULFTs and 10 HETs have been installed within VWC's service area representing a combined water savings of 7.82 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 and VWC 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 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 FMWD 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. FMWD does not have this type of model, and it would be expensive to create one. As a solution, the rebates that FMWD 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 FMWD. Thus, an adjustment has been added to prorate the difference between the amount allocated to FMWD by Metropolitan and the initial allocation by FMWD.

Additionally, FMWD 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 FMWD 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 FMWD 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 FMWD in 2004, 2005 and 2006. The conservation credit FMWD 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. FMWD will submit the documentation to Metropolitan. Once Metropolitan approves the adjustment, FMWD 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 FMWD. Thus, an adjustment has been added to prorate the difference between the amount allocated to FMWD by Metropolitan and the initial allocation by FMWD.

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.

Valley Water Company

The VWC Board of Directors adopted a No Waste Ordinance in order to conserve VWC’s water supply for the greatest public benefit, to reduce the quantity of water used by VWC’s customers, and to eliminate the wasteful use of water.

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

Stage No.	Water Supply Conditions	% Shortage
1 – Normal Water Conservation	FMWD 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

To be completed based on Metropolitan’s determination of the need for continuing its current Level 2 allocation in April 2011.

Metropolitan projects 100 percent reliability for full-service demands through the year 2035. Based on the FMWD Water Supply Allocation Plan, the VWC 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 5-2.

Table 5-2: Three-Year Estimated Minimum Water Supply

Source	Normal (2011)	2012	2013	2014
Imported Supply	2,330	2,330	2,331	2,331
Local Supplies	826	827	828	829
<i>Total</i>	<i>3,156</i>	<i>3,157</i>	<i>3,159</i>	<i>3,160</i>

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.

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.

Valley Water Company

VWC updated its emergency response plan on August 2004. The key elements of the emergency response plan have been identified as the following:

- An effective emergency response communication system;
- An interagency mutual aid program;

- Sections on water supply, water quality, emergency operations center (EOC), and an information resource list which includes telephone numbers and emergency supplies.

Also included in this plan is information defining the type of emergencies that set the plan into action, defining the procedures and protocols for communication, automatic notification procedures, EOC staffing, EOC supply lists, damage assessment procedures, and boil water notification procedures.

In addition to VWC's plan, the VWC, through FMWD, is involved with the Metropolitan Member Agency Response System (MARS). MARS has been developed as an emergency response program for Southern California's water suppliers. The main focus thus far for MARS has been the communication system that is activated during major emergencies to facilitate the flow of information and distribution of equipment and manpower within Metropolitan's service area.

Under the Raymond Basin Area Emergency Preparedness Response Program, approximately eighteen water agencies in Foothill's geographic area will coordinate their efforts on a localized basis to assist each other under emergency conditions. If needed, help will be provided or requested via the MARS, communication system.

Supplemental Water Supplies

On October 1, 2003, VWC entered into a water storage agreement with FMWD, in accordance with FMWD's Groundwater Storage Program Funding Agreement (No. 49961), herein, "Metropolitan Agreement". The purpose of the Metropolitan Agreement is to encourage the use of ground water when surface water supplies should be conserved. Because of this, Metropolitan is willing to offer a reduced price and additional benefit from water stored in the basin and thereafter used in lieu of direct delivery. VWC's water storage agreement with FMWD likewise encourages the use of ground water when surface supplies should be conserved, and passes on savings to VWC. This water is stored with the intent of being produced to meet demands during periods of water shortage. Under the Metropolitan Agreement, FMWD may store up to 3,000 AFY and up to a total of 9,000 AFY.

VWC also maintains its own Raymond Basin storage account in the amount of about 1,200 acre-feet. This water will, in addition to the FMWD Conjunctive Use Program discussed above, be available to meet water demands during shortages that may occur.

Emergency Water Interconnections

VWC has a system intertie with the City of Pasadena which, under emergency conditions, will allow the transfer of water in either direction between the two systems.

Conjunctive Use Programs

VWC has been a participant in two separate programs for storing water in the Raymond Basin. This water was stored by either of two methods: use of the Aquifer Storage-Recovery (ASR) wells for injecting imported water into the Basin as previously described, or through the in-lieu process; using imported water instead of pumping water out of the Raymond Basin. VWC has placed about 1,200 acre-feet of water into long-term storage in an account for use at VWC's discretion.

In addition to the long-term storage program, VWC has been participating in the Seasonal Service Storage (SSS) program for 14 years. This program entails VWC maximizing its use of well water during summer months when demands for imported water are at their highest, and shifting their higher demands for imported water to winter months when imported water supplies are more readily available to Metropolitan. Metropolitan has offered financial incentives for agencies to operate under this conjunctive use program.

In addition, the FMWD Conjunctive Use Program is currently being implemented. This program provides for ground water storage of up to 9,000 acre-feet, with up to 3,000 acre-feet to be produced for each of three consecutive dry years, thus decreasing dependence on imported surface water supply. Additionally, there are current considerations to implement the Raymond Basin Conjunctive Use Program, which would generate grant funding for the construction of a nitrate removal plant. This plant would further lessen VWC's dependence on imported water supply. An implementation schedule is not yet available for the Raymond Basin Conjunctive Use Program.

Preparation Actions for possible catastrophes are listed in Table 5-3.

Table 5-3: Preparation Actions for Catastrophe

Possible Catastrophe	Preparation Actions
Regional Power Outage	<ul style="list-style-type: none"> • Emergency Response Communication System • Emergency Response Plan • Mutual Aid Agreements • Emergency Operations Center • Metropolitan Member Agency Response System (MARS) Participation • Supplemental Water Supplies • Emergency Water Interconnections • Conjunctive Use Programs
Earthquake	
Flood	
Other	

5.5. Prohibitions, Penalties and Consumption Reduction Methods

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 VWC’s No Waste Ordinance, these prohibitions shall promote the efficient use of water, reduce or eliminate water waste, complement the VWC’s Water Quality regulations and urban runoff reduction efforts, and enable implementation of the VWC’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 5-4.

Prohibitions

Table 5-4: 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: <ul style="list-style-type: none"> • 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 but not limited to sidewalks, walkways, driveways,	At All Times

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
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
No watering, sprinkling or irrigating shall take place	At All Times

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
in any landscaped or vegetated areas on days when the wind is blowing causing overspray, and on days when it is raining.	
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 VWC.	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 drip type irrigation systems when no emitter	Stage 4

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
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 VWC.	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: <ul style="list-style-type: none"> • 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 water meter(s) to the satisfaction of the local 	Stage 5

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
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 VWC.	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 VWC.	Stage 5

Consumption Reduction Methods

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

Table 5-5: Consumption Reduction Methods

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
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 VWC and may be subject to written notices, surcharges, fines, flow restrictions, service disconnection, and/or service termination which are detailed in Table 5-6.

Table 5-6: Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
Written Notice	First Violation
Written Warning and possible installation of Flow Restrictor Device	Second Violation
Misdemeanor, possible referral to the County District Attorney’s Office, possible service disconnection	Third and Subsequent Violations

5.6. Impacts to Revenue

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. VWC's long-term financial planning includes consideration for maintaining sufficient reserve funds to offset additional expenses due to drought conditions which is listed in Table 5-7 and 5-8.

Table 5-7: Proposed Measures to Overcome Revenue Impacts

Name of Measures
Rate Adjustment
Use of Reserves

Table 5-8: Proposed Measures to Overcome Expenditure Impacts

Name of Measures
Obtain Alternative Sources of Funding
Defer certain expenditures
Minimize Capital Improvement Projects

5.7. Reduction Measuring Mechanism

Under normal water supply conditions, water production, purchase, and consumption figures are recorded daily, and totals are available daily to management. Totals are reported bi-monthly to the board of directors in the monthly financial and sales records report.

Reduction Monitoring Mechanisms are listed in Table 5-9.

Table 5-9: Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reductions	Type of Data Expected
Report Daily Totals to Management	Water production, purchase, consumption totals
Report Totals Bimonthly to Board of Directors	Water production, purchase, consumption totals

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
Groundwater Agencies	
Planning Agencies	

6.2. Wastewater Description and Disposal

LACSD's District No. 28 services a small portion of VWC's service area, north of Foothill Blvd. This includes all of VWC's service area east of Gould Avenue, and most of the VWC's service area east of La Cañada Boulevard (all sewerage systems in this area have not yet been completed).

LACSD's District No. 34, which encompasses the remainder of VWC's service area, has not yet constructed sewerage systems. This District is currently inactive and sewerage service in this area is provided by individual private disposal systems.

Wastewater collected from VWC's service area in LACSD's District No. 28 flows downstream for treatment at the Districts' Whittier Narrows Water reclamation Plant (WRP) in El Monte (approximately 17 miles southeast of La Cañada Flintridge), or the Districts' Joint Water Pollution Control Plant (JWPCP) in Carson (approximately 26 miles southwest of La Cañada Flintridge).

The JWPCP is the Districts' largest treatment plant, and is one of the largest treatment plants in the world, providing both primary and secondary treatment for 400 MGD of wastewater. Wastewater processes at JWPCP are: screening, grit removal, primary

sedimentation, pure oxygen activated sludge, secondary clarification, anaerobic sludge digestion, and sludge dewatering. Sludge produced at the plant is composted and marketed, landfilled, burned in a cement kiln, or land applied.

The Whittier Narrows WRP was the first reclamation plant built by the Districts in 1962. It provides primary, secondary, and tertiary treatment for 15 MGD of wastewater. The treatment plant utilizes the following process sequence: primary sedimentation, activated sludge biological treatment (modified for nitrification/denitrification, secondary sedimentation, coagulation, inert media filtration, chlorination, and dechlorination. Solids are sent downstream for processing at the JWPCP. Virtually all of the reclaimed water is used for groundwater replenishment or for irrigation at an adjacent nursery. Treated wastewater that is used for groundwater recharge or discharged to unlined channels is dechlorinated; that delivered for reuse is not dechlorinated.

Approximately 810,000 gallons of wastewater per day is produced by VWC's service area. LACSD does not monitor the quantity of wastewater collected from each individual service area; only the amount of wastewater that finally enters the plant is monitored. Also, Due to the sewer layout, LACSD has no way of monitoring what percentage of flow from each city is entering the treatment plant.

Wastewater disposal is performed by the Los Angeles County Sanitation Districts for the portions of VWC's service area that are sewered. Prior to discharge, the treated wastewater is disinfected with hypochlorite and sent to the Pacific Ocean through a network of outfalls. These outfalls extend two miles off the coast of Southern California into the Palos Verdes Peninsula to a depth of 200 feet.

Wastewater disposal for the remaining areas of VWC's service area, which is not sewered, is provided by individual septic disposal systems.

6.3. Current Recycled Water Uses

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

6.4. Potential Recycled Water Uses

FMWD, VWC'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 VWC 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 VWC’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

6.4.1. Direct Non-Potable Reuse

VWC 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

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

6.5. Optimization Plan

Because VWC is not using recycled water at this time, it is not practicable to provide a recycled water optimization plan. VWC 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 VWC exceed the cost of purchasing additional imported water from Metropolitan.

VWC 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, VWC can meet projected demands with existing facilities and distribution system.

7.2. Transfer or Exchange Opportunities

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

7.3. Planned Water Supply Projects and Programs

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

7.4. Desalination Opportunities

VWC does not have opportunities to directly develop desalinated supplies. It does not border the ocean and cannot participate directly in ocean desalination. However, VWC 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 VWC 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 VWC's service area.

7.4.2. Ocean Water

VWC 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, VWC worked closely with other entities such as FMWD to develop and update this planning document. VWC 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 VWC 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 Hearing)	March 3, 2011 & April 7, 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)	February 2, 2011	Appendix D
Held public hearing	April 14, 2011	Appendix E
Adopted UWMP	April 16, 2011	Appendix F
Submitted UWMP to DWR (no later than 30 days after adoption)	May 16, 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)	May 16, 2011	
Made UWMP available for public review (no later than 30 days after filing with DWR)	June 16, 2011	

This UWMP was adopted by the Board of Directors on April 16, 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 VWC to notify any city or county within its service area at least 60 days prior to the public hearing. VWC sent a Letter of Notification to the Cities of La Cañada Flintridge,

Pasadena and the County of Los Angeles on February 2, 2011 that it is in the process of preparing an updated UWMP (Appendix D).

8.2. Public Participation

VWC has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1985. Public meetings were held on the 1985, 1990, 1995, 2000, and 2005 plans.

On April 14, 2011, VWC held a Public Hearing to receive comments on its draft 2010 UWMP. All comments received prior to and during the Public Hearing were taken into consideration in the preparation of the final report. No comments were received during the public hearing.

8.3. Agency Coordination

All of VWC’s water supply planning relates to the policies, rules, and regulations of its regional and local providers. VWC is dependent on imported water from Metropolitan via FMWD and local groundwater from the Raymond Basin, managed by the Raymond Basin Management Board. VWC serves water to the City of La Cañada Flintridge within the County of Los Angeles. As such, VWC involved these entities in the development of its 2010 UWMP at various levels of contribution as summarized in Table 8-2.

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
Metropolitan	x			x			
FMWD	x			x			
City of La Cañada Flintridge						x	
County of Los Angeles						x	
Raymond Basin Management Board						x	
General Public			x				

VWC is a member agency of FMWD; therefore VWC's 2010 UWMP was developed in collaboration with FMWD's 2010 UWMP. FMWD also provided assistance to VWC's 2010 UWMP development in various aspects. VWC's 2010 UWMP was also developed in collaboration with Metropolitan's 2010 RUWMP and 2010 Integrated Water Resources Plan.

8.4. UWMP Submittal

8.4.1. Review of Implementation of 2005 UWMP

As required by California Water Code, VWC 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

VWC recognizes the importance of water conservation and has made water use efficiency an integral part of water use planning. VWC is not a California Urban Water Conservation Council (CUWCC) signatory; however, it is currently implementing all 14 DMMs described in the Act. DMMs as defined by the Act correspond to the CUWCC's Best Management Practices (BMPs). For VWC'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 and adopted the Final Draft Plan on April 16, 2011. See Appendix F for the resolution approving the Plan.

By May 16, 2011, VWC's Adopted 2010 UWMP was filed with DWR, California State Library, County of Los Angeles, and cities within VWC's service area.

Appendices

- A. Urban Water Management Plan Checklist
- B. Raymond Basin Water Rights Adjudication
- C. Resolution No. 772-0409
- 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 Section 2.2.3
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

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		Section 2.4
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
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
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 3.4.1
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 3.4.2
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 3.4.2.1

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 3.4.3 Section 3.4.4 Section 3.4.5
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measure 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.	Section 4
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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1 Victor Kaleta
2 City Attorney, Pasadena
3 City Hall
4 Pasadena, California 91109
5
6 BEST, BEST & KRIEGER
7 Arthur L. Littleworth
8 P. O. Box 1028
9 Riverside, California 92502
10 Telephone: (714) 686-1450
11 Special Counsel for Plaintiff

12 SUPERIOR COURT OF CALIFORNIA, COUNTY OF LOS ANGELES

13 CITY OF PASADENA, a municipal) NO. Pasadena C-1323
14 corporation,)
15 Plaintiff,) JUDGMENT
16 vs.) (As Modified and Restated
17 CITY OF ALHAMBRA, a municipal)
18 corporation, et al.,)
19 Defendants.)
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29 The above-entitled action was brought by plaintiff,
30 City of Pasadena, a municipal corporation, against City of
31 Alhambra, a municipal corporation, City of Monrovia, a municipal
32 corporation, City of Arcadia, a municipal corporation, City of
33 Sierra Madre, a municipal corporation, City of South Pasadena,
34 a municipal corporation, La Canada Irrigation District, San
35 Gabriel County Water District, Lincoln Avenue Water Company, a
36 corporation, The Las Flores Water Company, a corporation, Rubio
37 Canon Land and Water Association, a corporation, Valley Water
38 Company, a corporation, Flintridge Mutual Water Company, a
39 corporation, California-Michigan Land and Water Company, a cor-

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

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1 this action; and

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

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

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1 Works, State of California, as referee; after hearing thereon,
2 following notice duly served on all defendants not parties to
3 said motion, said Division of Water Resources having been
4 appointed referee herein to investigate all of the physical
5 facts involved herein, and seasonably to report to the Court
6 thereon, and the said referee having filed its report herein
7 and the objections thereto filed with it, a stipulation in
8 writing having been entered into on the 29th day of September,
9 1943 by and between the attorneys for certain parties, to
10 wit: City of Alhambra, City of Arcadia, California Water and
11 Telephone Company, Canyon Mutual Water Company, Crown City
12 Ice Company, El Campo Mutual Water Company, First Trust and
13 Savings Bank of Pasadena, Flintridge Mutual Water Company,
14 Francis P. Graves, Alice Graves Stewart and Katharine Graves
15 Armstrong, being the heirs of Alice H. Graves, deceased, and
16 being the residuary legatees under the Last Will and Testament
17 of Alice H. Graves, deceased, Las Flores Water Company,
18 Lincoln Avenue Water Company, Ross M. Lockhart, Ernest Crawford
19 May, as Executor of the Last Will and Testament of Charles
20 Heuston Hastings, deceased, Robert A. Millikan, Archer Milton
21 Huntington, Herbert Hoover, William B. Munro and Edwin P.
22 Hubbell, Trustees of the Henry E. Huntington Library and Art
23 Gallery, Mira Loma Mutual Water Company, City of Monrovia,
24 Chesley E. Osborn and Kathleen M. Osborn, Pasadena Cemetery
25 Association, City of Pasadena, Royal Laundry and Dry Cleaning
26 Company, Rubio Canon Land and Water Association, San Gabriel
27 County Water District, City of Sierra Madre, Sunny Slope
28 Water Company, Valley Water Company, A. V. Wagner and those

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

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

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

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1 as attorney for defendant Flintridge Mutual Water Company;
2 Kenneth K. Wright, Esq., appearing as attorney for defendant
3 Valley Water Company; John C. Packard, Esq. and Kenneth K.
4 Wright, Esq., appearing as attorneys for defendant El Campo
5 Mutual Water Company; Messrs. Derthick, Cusack and Ganahl by
6 W. J. Cusack, Esq., and Kenneth K. Wright, Esq., appearing as
7 attorneys for defendant Crown City Ice Company; Messrs.
8 Dunn & Sturgeon by Walter F. Dunn, Esq., Messrs. Chandler &
9 Wright by Howard W. Wright, Esq., and Kenneth K. Wright,
10 Esq., appearing as attorneys for defendants Francis Graves,
11 Alice Graves Stewart and Katharine Graves Armstrong; Messrs.
12 Bailie, Turner & Lake by Norman A. Bailie, Messrs. Cruickshank,
13 Brooke & Dunlap by Robert H. Dunlap, Esq., and Kenneth K.
14 Wright, Esq., appearing as attorneys for defendant Ernest
15 Crawford May, as Executor of the Last Will and Testament of
16 Charles Heuston Hastings, deceased; Messrs. Gibson, Dunn &
17 Crutcher by Ira C. Powers, Esq., and Kenneth K. Wright, Esq.,
18 appearing as attorneys for defendants Robert A. Millikan,
19 Archer Milton Huntington, Herbert Hoover, William B. Munro
20 and Edwin P. Hubbell, trustees of the Henry E. Huntington
21 Library and Art Gallery; Messrs. Anderson and Anderson by
22 Trent G. Anderson, Esq., and Kenneth K. Wright, Esq., appearing
23 as attorneys for defendant Rubio Canon Land and Water Associa-
24 tion; Frank P. Doherty, Esq., and Kenneth K. Wright, Esq.,
25 appearing as attorneys for defendant La Canada Irrigation
26 District; Messrs. Boyle, Holmes & Garrett by John W. Holmes,
27 Esq., and Kenneth K. Wright, Esq., appearing as attorneys for
28 defendant First Trust and Savings Bank of Pasadena; Walter F.

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1 Dunn, Esq., City Attorney, and Kenneth K. Wright, Esq.,
2 appearing as attorneys for defendant City of Sierra Madre;
3 Wilton W. Webster, Esq., and Kenneth K. Wright, Esq., appearing
4 as attorneys for defendant Royal Laundry and Dry Cleaning
5 Company; Messrs. Bacigalupi, Elkus & Salinger by Claude
6 Rosenberg, Esq., and Kenneth K. Wright, Esq., appearing as
7 attorneys for defendant California Water and Telephone Company;
8 Kenneth K. Wright, Esq., appearing as attorney for defendant
9 San Gabriel Valley Water Company; Messrs. Merriam, Rinehart &
10 Merriam by Ralph T. Merriam, Esq., appearing as attorneys for
11 defendant Pasadena Cemetery Association; Frederick G. Stoehr,
12 Esq., appearing as attorney for defendant A. V. Wagner;
13 Messrs. Potter and Potter, by Bernard Potter, Esq., appearing
14 as attorneys for defendant Mira Loma Mutual Water Company;
15 Gerald E. Kerrin, Esq. and James C. Bone, Esq., City Attorney,
16 appearing as attorneys for defendant City of Arcadia; Laurence B.
17 Martin, Esq., appearing as attorney for defendant Sunny Slope
18 Water Company; Robert E. Moore, Esq., appearing as attorney
19 for defendant Lincoln Avenue Water Company; Messrs. Hahn and
20 Hahn by Edwin F. Hahn, Esq., appearing as attorneys for
21 defendant The Las Flores Water Company; Messrs. Hahn and Hahn
22 by Edwin F. Hahn, Esq., appearing as attorneys for defendants
23 Chesley E. Osborn and Kathleen M. Osborn; and Messrs. Hahn
24 and Hahn by Edwin F. Hahn, Esq., appearing as attorneys for
25 defendant Canyon Mutual Water Company, and

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

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1 of objection 18 which was withdrawn by said defendant, and

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

9 The Court, by reason of the stipulation aforesaid
10 and the findings of fact and conclusions of law, having
11 rendered its Judgment on December 23, 1944, and such Judgment
12 having been entered in Book 1491, page 84, on December 26,
13 1944, and

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

18 Plaintiff having moved the Court for an order
19 further modifying and restating the Judgment as modified,
20 such motion having come on regularly for hearing on the 16th
21 day of March, 1984, in Department A of the Northeast District
22 of this Court, the Honorable Robert M. Olson, Judge, presiding;
23 and notice of such motion having been duly served on all
24 defendants and interested parties; and no objections to the
25 granting of the motion having been filed or made at the hearing;
26 and good cause having been shown, and the Court having therefore
27 granted the motion, pursuant to the continuing jurisdiction of
28 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

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

3 Each of the said parties, and their successors in
4 interest, having diversion rights as set forth above in the
5 Western Unit of the Raymond Basin Area shall have the right
6 in its discretion to spread the surface water diverted pursuant
7 to its respective right, and to recapture eighty percent
8 (80%) thereof by pumping, subject to and upon the following
9 terms and conditions.

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

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

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

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

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

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1 for appropriate action.

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

8 (6) For accounting purposes, the first water taken
9 from the Western Unit of the Raymond Basin Area during any
10 accounting year, by any party having made diversions for spread-
11 ing purposes during the previous accounting year, shall be con-
12 sidered by the Watermaster as water pumped pursuant to subpara-
13 graph (4) above, unless such water was pumped during the same
14 accounting year in which it was diverted and spread.

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

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

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

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

6
7 III

8
9 Each and all of the rights of the parties hereto to
10 pump water from wells or otherwise take water from the ground
11 in said Raymond Basin Area are of equal priority and of the
12 same legal force and effect.

13
14 IV

15
16 Subject to the provisions of Paragraphs V, VI and
17 XXI hereof, each party hereto is the owner of the right to
18 pump water from wells or otherwise take water from the ground
19 in each of said units in the amount set forth opposite the
20 name of each party in the following table, which said right,
21 for convenience, is designated the "present unadjusted right":

22
23 PRESENT UNADJUSTED RIGHTS TO TAKE
24 WATER IN RAYMOND BASIN AREA

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

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1	<u>Western Unit</u>	
2	Alhambra, City of	1,042
3	Arcadia, City of (including, as	2,141
4	successor, the rights of the	
	City of Monrovia)	
5	California American Water Company	2,324
6	(as successor to the California	
7	Water and Telephone Company, and	
	including, as successor, the rights	
	of the El Campo Mutual Water Company)	
8	Crown City Ice Company	0
9	East Pasadena Water Company (as	521
10	successor to the California-	
	Michigan Land and Water Company)	
11	Henry E. Huntington Library and Art	265
12	Gallery (as successor to Robert A.	
13	Millikan, et al., Trustees of the	
	Henry E. Huntington Library and Art	
	Gallery)	
14	Kinneloa Irrigation District (as	522
15	successor to the rights of Francis P.	
16	Graves, et al.; Ross M. Lockhart;	
	A. V. Wagner; Mira Loma Mutual Water	
17	Company; Canyon Mutual Water Company;	
	and Chesley E. and Kathleen M. Osborn)	
18	La Canada Irrigation District	101
19	Las Flores Water Company	252
20	Lincoln Avenue Water Company	573
21	May, Ernest Crawford, as Executor	0
	of the Last Will and Testament of	
22	Charles Heuston Hastings, deceased	
23	Milum Textile Services Company (as	111
	successor to Royal Laundry and Dry	
24	Cleaning Company)	
25	Pasadena Cemetery Association	92
26	Pasadena, City of (including, as	12,946
	successor, the rights of the First	
27	Trust and Savings Bank of Pasadena)	
28	/ / /	

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1 each of their agents, employees, attorneys, and any and all
2 persons acting by, through, or under them, are and each of
3 them is, subject to the terms of Paragraph XXI hereof,
4 hereby forever enjoined and restrained on and after July 1,
5 1944, as to all parties other than California-Michigan Land
6 and Water Company, and on and after July 1, 1945 as to said
7 California-Michigan Land and Water Company, from pumping or
8 otherwise taking from the ground in said Western Unit more
9 water than its decreed right in this Paragraph determined;
10 provided that a party may exceed its decreed right to the
11 extent that it has acquired and exercises the decreed right
12 of any other party, or as may become necessary in the case of
13 an emergency or temporarily for other reasonable cause as
14 determined by the Watermaster, taking into account the basin
15 supply, quality conditions, the impact on other parties, and
16 subject to such conditions as the Watermaster may impose,
17 including whether or not such excess extractions must be made
18 up in future years; and provided, however, that any of the
19 parties to this action may take in any twelve-month period
20 beginning July 1 for its own beneficial use, and for the
21 release of water for use by other parties or persons pursuant
22 to and in accordance with the Raymond Basin Area Water Exchange
23 Agreement for 1943 and amendment thereto, hereinafter referred
24 to, attached hereto and hereby made a part hereof, an amount
25 not exceeding one hundred ten percent (110%) of its decreed
26 right as fixed herein, plus any amount of allowable underpumping
27 as hereinafter provided. Any such extractions in excess of a
28 party's decreed right (not including any emergency or temporary

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1 extractions authorized by the Watermaster) shall be made up
2 in the following year, and the amount of water which a party
3 may take under its decreed right in that year shall be reduced
4 by an equivalent amount. If a party in any twelve-month
5 period, beginning July 1, takes less than its decreed right,
6 or less than the amount allowed after reduction for any
7 excess extractions, the amount of such underpumping, but not
8 exceeding ten percent (10%) of its decreed right or such
9 additional amount as the Watermaster may allow for an emergency
10 or other reasonable cause, may be carried over and taken
11 during the next succeeding year. The yearly period from
12 July 1 to June 30 hereby is adopted and shall be used in the
13 administration and enforcement of this Judgment.
14

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

	<u>Acre Feet Per Year</u>
17 Alhambra, City of	1,031
18 Arcadia, City of (including, as	2,118
19 successor, the rights of the	
20 City of Monrovia)	
21 California American Water Company	2,299
22 (as successor to the California	
23 Water and Telephone Company, and	
including, as successor, the rights	
of the El Campo Mutual Water Company)	
24 East Pasadena Water Company (as	515
25 successor to the California-	
Michigan Land and Water Company)	
26 Henry E. Huntington Library and Art	262
27 Gallery (as successor to Robert A.	
28 Millikan, et al., Trustees of the	
Henry E. Huntington Library and Art	
Gallery)	

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

VI

22 The decreed right of each party hereto in said
23 Eastern Unit is as follows:
24 City of Arcadia, 3,526 acre feet per year;
25 City of Sierra Madre, 1,764 acre feet per year.
26 Each of said parties, and each of their agents,
27 employees, attorneys and any and all persons acting by,
28 through, or under them, are and each of them is subject to

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

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

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

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

17 (3) From pumping or otherwise taking water from
18 the ground in said Eastern Unit in any year in excess of the
19 average amount pumped or taken therein during the period
20 1927-28 to 1937-38, to wit: 3,261 acre feet per annum,
21 during any year in which static groundwater level measurements,
22 made at the time of maximum high water table in the spring
23 season of each year, show that the average water table eleva-
24 tion in the area between Foothill Boulevard and Raymond Fault
25 and between a line 300 feet west of Rosemead Boulevard and a
26 line 100 feet east of Michillinde Avenue, less any increase
27 in such elevation that is attributable to any groundwater
28 storage program, is higher than that at the Arcadia group of

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

7
8 VII

9
10 There is now and, so long as the requirements in sub-
11 paragraphs 2 and 3 of Paragraph VI hereof are fulfilled and
12 maintained, there will be no material movement of water across
13 the boundary between the Western Unit and the Eastern Unit.

14
15 VIII

16
17 Nothing in this Judgment contained shall be deemed
18 to modify the rights as between the defendants City of Sierra
19 Madre and City of Arcadia as set forth in that certain Judgment
20 entitled "The City of Sierra Madre, a municipal corporation, et
21 al., vs. The City of Arcadia, a municipal corporation," No.
22 209747 in the Superior Court of the State of California, in
23 and for the County of Los Angeles, entered on the 22nd day of
24 April, 1930, but in the exercise of such rights each of said
25 parties shall be subject to the express provisions of Para-
26 graph VI hereof.

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28 / / /

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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,

1 and shall carry out all of the responsibilities, of the
2 Watermaster as provided in this Judgment. In addition, in
3 order to implement sound water management practices within
4 the framework of the rights of the parties as determined
5 herein, the Board shall have the powers set forth in Para-
6 graph XII.

7
8 XI

9
10 The Board shall be organized and constituted as
11 follows:

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

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

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

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

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

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

12
13 XII

14
15 The powers and responsibilities of the Raymond
16 Basin Management Board, as Watermaster and otherwise, shall
17 be exercised with a view toward protecting the long-term
18 quantity and quality of the groundwater supply; utilizing the
19 groundwater storage capacity of the basin for the maximum
20 advantage of the parties, without however causing significant
21 adverse impact upon any party; integrating to the extent
22 feasible the use of surface and groundwater supplies so as to
23 reduce costs, improve reliability of supply, and to protect
24 against drought; and to encourage the parties to cooperate in
25 the utilization of their respective water rights and water
26 systems for the mutual good. The Board shall have power:

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

1 to perform all or part of the Watermaster functions.

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

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

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

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

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1 which it provides.

2 (6) To conduct studies or undertake other activities
3 for the common benefit of the parties in the operation of the
4 Raymond Basin Area; to obtain engineering, legal and other
5 professional services in such connection; and, in addition to
6 the Watermaster budget procedures, to assess the parties in
7 an equitable manner and as may be necessary to pay the costs
8 of the Board's operations, which assessments shall be paid by
9 the parties. Payment shall be enforced in the same manner as
10 provided in Paragraph XV for the annual budget, although the
11 actual apportionment of costs may differ from the method
12 provided in Paragraph XV. All actions of the Board, including
13 any assessments imposed, shall be subject to review by the
14 Court, pursuant to the procedures of Paragraph XVII.
15

16 XIII

17
18 Each party hereto at its own expense shall:

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

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

28 / / /

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

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

18
19 XIV

20
21 In addition to other duties herein provided, the
22 Watermaster shall:

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

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

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

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

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

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

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

15 (5) Make an annual report on or before September 1
16 of each year to the parties hereto of the scope of the Water-
17 master's work during the preceding fiscal year and a statement
18 of receipts and expenditures in appropriate detail, segregated
19 as to the items attributable to the administration of the
20 provisions of said Agreement and amendment thereto respecting
21 the release and receipt of water, and as to the items attri-
22 butable to the administration of the other provisions of said
23 Agreement and amendment thereto and to the enforcement of
24 this Judgment.

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26 / / /
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XV

1
2
3 The cost of enforcing this Judgment or any order or
4 direction of this Court or of the Watermaster (other than
5 those with respect to the release and receipt of water in
6 accordance with the provisions of said Agreement and amendment
7 thereto) shall be borne by the parties in proportion to their
8 respective decreed rights as determined in Paragraphs V
9 and VI of this Judgment, and the Watermaster shall assess
10 such cost to each party accordingly.

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

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

9
10 XVI

11
12 Any Watermaster ceasing to perform Watermaster
13 service hereunder immediately upon such cessation shall
14 deposit with the clerk of this Court all funds in his posses-
15 sion collected from the parties in accordance with this
16 Judgment or said Agreement and amendment thereto, and forth-
17 with shall serve upon the parties hereto and file with this
18 Court his final account and report, and shall deliver to his
19 successor, or as the Court may direct, all property and all
20 records or certified copies thereof.

21
22 XVII

23
24 Any party having objection to any determination or
25 finding made by the Watermaster, other than as provided in
26 subparagraph (4) of Paragraph XIV hereof, may make the same
27 in writing to the Watermaster within thirty (30) days after
28 the making of such determination or finding after first

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1 having served a copy of such objection upon each party, and
2 within thirty (30) days thereafter the Watermaster shall
3 consider said objection and shall amend or affirm his finding
4 or determination; any party objecting thereto within thirty
5 (30) days thereafter may file its objections with this Court,
6 bringing the same on for hearing before said Court within
7 sixty (60) days thereafter, or at such time as the Court may
8 direct, after first having served said objection upon each
9 party. The Court may affirm, modify, amend or overrule any
10 such finding or determination of the Watermaster.
11

12 XVIII

13
14 Within thirty (30) days after the appointment of
15 the Watermaster, each of the parties shall file with the
16 Watermaster and serve on each party the name and address of
17 the person to whom any notice, demand, request, objection or
18 the submission of any budget and the annual report is to be
19 made or given, and each of said parties may change the name
20 and address of said person from time to time by filing said
21 changed name and address with the Watermaster and by serving
22 a copy thereof upon each of the parties hereto.

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

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

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

12
13 XIX
14

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

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

9 No taking of water by any party under the provisions
10 of said Agreement and amendment thereto concerning the release
11 and receipt of water in any amount in excess of its decreed
12 right to pump or otherwise take water from the ground in the
13 Raymond Basin Area shall constitute a taking adverse to any
14 other party; nor shall any party have the right to plead the
15 statute of limitations or an estoppel against any other party
16 by reason of its said taking of water in the Raymond Basin
17 Area pursuant to a request for the release of water; nor
18 shall such release of water by any party constitute a for-
19 feiture or abandonment by such party of any part of its
20 decreed right to water; nor shall such release in any wise
21 constitute a waiver of such right, although such water, when
22 released under the terms of said Agreement and amendment
23 thereto, may be devoted to the public use of others; nor shall
24 such release of water by any such party in any wise obligate
25 any party so releasing to continue to release or furnish water
26 to any other party or its successor in interest, or to the
27 public generally, or to any part thereof, otherwise than as
28 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

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1 of any right, in whole or in part, decreed herein, and by the
2 abandonment or forfeiture of any right by any other person or
3 entity, and, in the event material change be found or any
4 such abandonment or forfeiture be established, to adjudge
5 that the decreed right of each party to pump or otherwise
6 take water from the ground in the Raymond Basin Area shall be
7 changed proportionately in the same manner as originally
8 fixed herein; provided, however, that notice of such review
9 shall be served on all parties at least thirty (30) days
10 prior thereto and that the review of its determination of the
11 safe yield of either or both of said units of the Raymond
12 Basin Area shall be had not more frequently than at five (5)
13 year intervals after the date hereof. Except as provided
14 herein, and except as rights decreed herein may be abandoned
15 or forfeited by nonuser, in whole or in part, each and every
16 right decreed herein hereby is fixed as of the date hereof.
17

18 XXII
19

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

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1 other and/or additional orders of sufficient kind and nature
2 to protect the waters in said Raymond Basin Area or any
3 portion thereof from contamination of the groundwater supply
4 from cesspool effluent or surface waters.
5

6 XXIII
7

8 The defendant California-Michigan Land and Water
9 Company is entitled to become a party to the Raymond Basin
10 Area Water Exchange Agreement of 1934 and thereby become
11 entitled to receive water upon the same terms and conditions
12 provided in said Agreement with respect to the several parties
13 thereto.
14

15 XXIV
16

17 The defendant Bradbury Estate Company, a corporation,
18 and Eugene E. Bean be and they hereby are dismissed without
19 costs.
20

21 XXV
22

23 None of the parties is entitled to recover its
24 costs as against any other party.
25

26 DATED: March 26, 1984

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

Appendix C

Resolution No. 772-0409

RESOLUTION NO. 772-0409

**A RESOLUTION OF THE BOARD OF DIRECTORS OF
FOOTHILL MUNICIPAL WATER DISTRICT
ADOPTING A CONSERVATION PLAN**

**BE IT RESOLVED BY THE BOARD OF DIRECTORS OF FOOTHILL
MUNICIPAL WATER DISTRICT as follows:**

1. Purpose.

This resolution adopts a conservation plan. The plan will be implemented in stages to reflect the increasing shortage of water supply. The Board will regularly examine the adequacy of the water supply and from time-to-time, make findings concerning the stage of shortage, if any. The Board anticipates voluntary measures will be effective to address most shortages but the board will conduct a duly-noticed public hearing to consider mandatory water allocation if necessary.

2. Findings.

The State of California, particularly Southern California, is experiencing severe water shortages due to the simultaneous reductions in supplies through major aqueducts, such as the State Water Project of California Aqueduct, the Colorado River Aqueduct, and the City of Los Angeles Aqueduct. The shortage is exacerbated by reductions in supply caused by the implementation of environmental protection laws for fish species in the Sacramento Delta and the general and profound lack of rainfall. As a result, the District's source of supply – Metropolitan Water District of Southern California ("Metropolitan") – has increased voluntary conservation goals and is considering instituting an allocation plan which anticipates the potential for significant water conservation by its member agencies, including this District. The potential reductions in deliveries by Metropolitan will be manageable if the agencies of this District and their respective customers institute wise and progressive water conservation measures as described herein.

3. Shortage Stages.

The District will institute aggressively more severe water conservation measures, based on the then current shortage. For the purposes of this plan, this shortage condition will be described as one of the following stages:

- (a) Stage 1: Normal Water Conservation. Foothill can meet all Member Agency demands. Voluntary water conservation applies. (0% shortage)
- (b) Stage 2: Increased Voluntary Conservation. Some supplies have been impacted and consumers should increase efforts to conserve. (0% shortage.)
- (c) Stage 3: 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% shortage.)
- (d) Stage 4: Allocation. Metropolitan has implemented its allocation plan to its

member agencies thus supplies are limited. (Up to 50% shortage for the District)

(e) Stage 5: Critical. Water supplies are only available for health and safety needs. (50% or greater shortage for the District)

4. Stage 1 Measures.

During stage 1 through 5:

(a) **Education Materials:** The District will offer educational materials to its customers in the efficient use of water to help customers conserve water. The District will furnish customers with water conservation information.

(b) **Leaks:** Customers shall conserve water supplied by the District by the prevention and elimination of all waste of leakage of water. 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. Residents are requested to report any observed waste of water from surrounding properties or in the community and report to their local water provider for follow-up.

(c) **New Plumbing Fixtures:** All new plumbing fixtures installed within the District service area must conform to the following requirements:

- (1) Toilets shall use less than 1.6 gallons per flush.
- (2) Showerheads shall flow at less than 2.5 gallons per minute.
- (3) Non-residential lavatory faucets shall be metering or self-closing.
- (4) Urinals shall use not more than 1.5 gallons per flush.

(d) **Recycled Water:** 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 General Manager that recycled water is available and appropriate for use, the customer shall have 60 days to commence the use of recycled water. Thereafter, all potable water, which is delivered to the property for irrigation shall be charged at a rate of 150% of the then current potable water rate. As used in this section, "available" means a district-recycled water main is contiguous to the site in question.

As used in this section, "appropriate" means the proposed use is acceptable to the Department of Health Services and the Regional Water Quality Control Board.

(e) **Construction Activities:** Potable water shall not be used for construction activities such as compaction and dust control when recycled water is available and appropriate. 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 nonpotable 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.

(f) **Runoff Elimination:** It is the desire of the District to effect conservation of water resources whenever possible, such measures being consistent with legal

responsibilities to seek to wisely utilize the water resources of the State of California and the District. 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.

(g) **Limits on Watering Hours:** Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 9:00 a.m. and 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.

(h) **Limit on Watering Duration:** Watering or irrigating of lawn, landscape or other vegetated area with potable water using a landscape irrigation system or a watering device 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.

(i) **No Washing Down Hard or Paved Surfaces:** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume high-pressure water broom.

(j) **Fountains and Water Features:** Re-circulating Water Required for Water Fountains and Decorative Water Features: Operating a water fountain or other decorative water feature that does not use re-circulated water is prohibited.

(k) **Limits on Washing Vehicles:** Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device. This subsection does not apply to any commercial car washing facility 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.

(l) **Drinking Water Served Upon Request Only:** 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.

(m) **Commercial Lodging Establishments Conservation Notice:** Commercial lodging establishments are requested to post notices informing their guests about the District's water conservation policy and urging guests to conserve water.

(n) **Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services:** 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.

(o) **Pre-Rinse Spray Valve:** Restaurants Required to Use Water Conserving Dish Wash Spray Valves: Food preparation establishments, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.

(p) **Windy and Rainy Days:** 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.

(q) **Fire Hydrants:** 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 District.

5. Stage 2 Measures.

(a) During Stage 2, the District shall encourage a reduction in water deliveries from the District to District customers.

(b) In addition to the prohibited uses of water identified in Section 4 above, the board may prohibit wasteful practices and implement conservation measures during a water shortage, including restrictions on the following:

(1) **No Installation of Single Pass Cooling Systems:** Installation of single pass cooling systems is prohibited in buildings requesting new water service.

(2) **No Installation of Non-re-circulating in Commercial Car Wash and Laundry Systems:** Installation of non-re-circulating water systems is prohibited in new commercial conveyor car wash and new commercial laundry systems.

(3) **Commercial Car Wash Systems:** Effective on July 1, 2009 all commercial conveyor car wash systems must have installed operational re-circulating water systems, or must have secured a waiver of this requirement from their local water purveyor.

(4) **Outdoor Water Use:** Outdoor water use is limited to odd or even days, based on ending number of customer address.

6. Stage 3 Measures.

(a) During Stage 3, the District shall encourage a reduction in water deliveries from the District to District customers.

(b) In addition to the prohibited uses of water identified in Section 4 and 5 above, the board shall prohibit wasteful practices and implement conservation measures during a water shortage, including restrictions on the following:

(1) **Limits on Watering Days:** 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.

7. Stage 4 Measures.

(a) During Stage 4, the District shall encourage a reduction in water deliveries from the District to District customers based on the amount of water Metropolitan Water District of Southern California reduces to it. Based on the shortage level declared by Metropolitan, the District shall allocate its water to the retail agencies as described in Attachment A. The amount of water allocated to each agency will be adopted by separate resolution and changed through a modified resolution when Metropolitan changes its allocation to the District.

(b) In addition to the prohibited uses of water identified in Section 4, 5 and 6 above, the board shall prohibit wasteful practices and implement conservation measures during a water shortage, including restrictions on the following:

(1) **Watering Days:** 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 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.

(2) **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by the local water purveyor unless other arrangements are made with the local water purveyor.

(3) **Limits on Filling Ornamental Lakes or Ponds:** Filling or re-filling ornamental lakes or ponds is prohibited, except to the extent needed to sustain aquatic life, 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.

(4) **Limits on Washing Vehicles:** Using water to wash or clean a vehicle, including but not limited to, any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, is prohibited except by use of a hand-held bucket or similar container, 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.

(5) **No New Potable Water Service:** Upon declaration of a Stage V Water Supply Shortage Critical condition, 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:

1. A valid, unexpired building permit has been issued for the project; or
2. The project is necessary to protect the public health, safety, and welfare; or
3. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the local water purveyor

(6) **No Annexations:** Upon the declaration of a Stage 5 Water Supply Shortage condition, the District 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.

8. Stage 5 Measures.

(a) During Stage 5, the District shall cease deliveries to District customers unless required for health and safety reasons and local agency water is not sufficient to meet needs.

(b) In addition to the prohibited uses of water identified in Section 4, 5, 6 and 7 above, the board shall prohibit wasteful practices and implement conservation measures during a water shortage, including restrictions on the following:

- (1) **No Watering or Irrigating:** 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 local water purveyor.
- (2) **Obligation to Fix Leaks, Breaks or Malfunctions:** All leaks, breaks, or other malfunctions in the water user's plumbing or distribution system must be repaired within twenty four (24) hours of notification by the local water purveyor unless other arrangements are made with the local water purveyor.

9. Implementation.

Commencing on the date this resolution is adopted and after Stage 3, 4 or 5 is declared and at each regular board meeting, the board of directors will consider a report by the General Manager concerning the then current water supply status. The board will change the stage designation as appropriate. However, the board will not impose mandatory measures without first conducting a duly-noticed public hearing pursuant to Water Code sections 350 *et seq.*, or 375 *et seq.*

10. Violation.

Any violation of this plan should be reported either to the areas local water purveyor or to the District at (818) 790-4036 or conserve@fmwd.com. District staff will contact the local water purveyor for follow up to the violation.

11. Other.

This resolution is effective immediately. The secretary shall forthwith transmit a certified copy of this resolution to each member agency of the District, Metropolitan, and each city located within the District.

PASSED, APPROVED AND ADOPTED on _____, 2009.

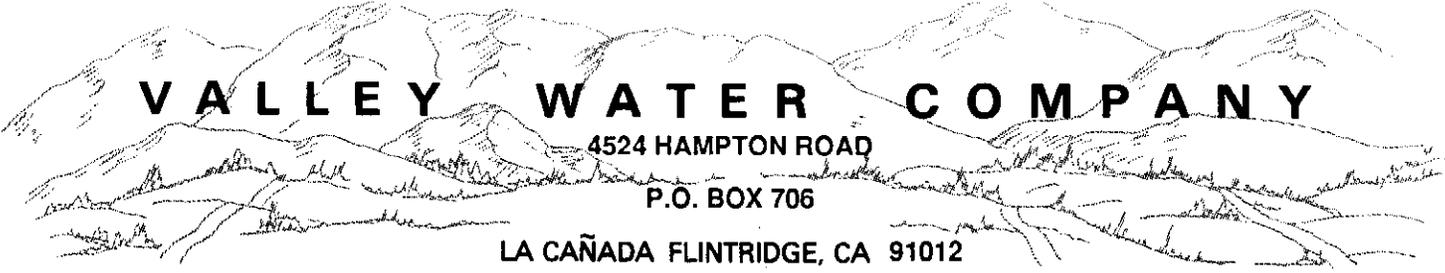
President

ATTEST:

Secretary

(SEAL)

Appendix D
60 Day Notification Letters



VALLEY WATER COMPANY

4524 HAMPTON ROAD

P.O. BOX 706

LA CAÑADA FLINTRIDGE, CA 91012

PHONE: (818) 790-5516 FAX: (818) 790-6019

February 2, 2011

Mr. Mark Alexander
City Manager
City of La Canada Flintridge
1327 Foothill Boulevard
La Canada Flintridge, CA 91011

**RE: Notice of Intention to Adopt
Urban Water Management Plan**

Dear Mr. Alexander,

This letter serves as a notice of Valley Water Company's intent to adopt an updated Urban Water Management Plan (Plan). A public hearing will be scheduled sometime in April 2011 to address comments, which may be submitted in writing before that time to:

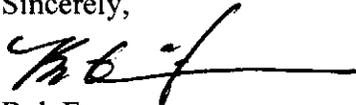
Valley Water Company
P.O. Box 706
La Canada Flintridge, CA 91011
Attention: Bob Fan

A copy of the Draft Plan is available for review at the Main Office of Valley Water Company, 4524 Hampton Road, La Canada Flintridge.

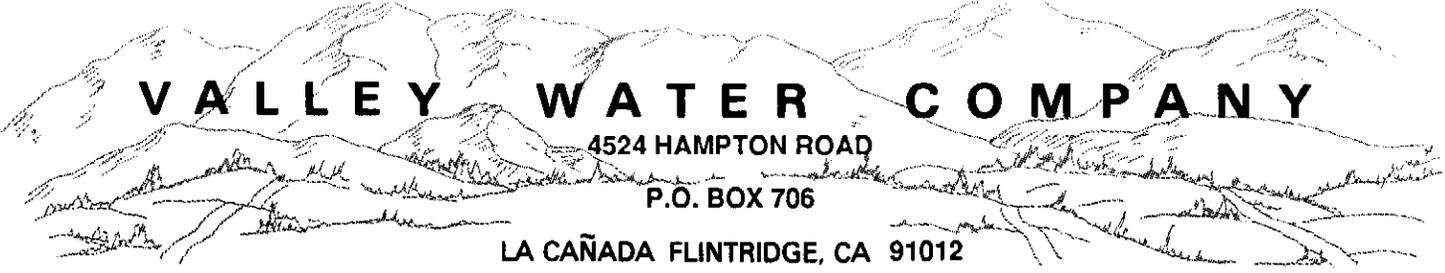
The updated Plan is scheduled for adoption subsequent to public hearing subject to comments received.

Please let me know if you have any questions.

Sincerely,



Bob Fan
General Manager



V A L L E Y W A T E R C O M P A N Y

4524 HAMPTON ROAD

P.O. BOX 706

LA CAÑADA FLINTRIDGE, CA 91012

PHONE: (818) 790-5516 FAX: (818) 790-6019

February 2, 2011

Mr. Shawn Kwan
City of Pasadena
150 S. Los Robles, Suite 200
Pasadena, CA 91101

**RE: Notice of Intention to Adopt
Urban Water Management Plan**

Dear Mr. Kwan,

This letter serves as notice of Valley Water Company's intent to adopt an updated Urban Water Management Plan (Plan). A public hearing will be scheduled sometime in April 2011 to address comments, which may be submitted in writing before that time to:

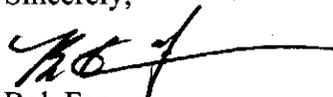
Valley Water Company
P.O. Box 706
La Canada Flintridge, CA 91011
Attention: Bob Fan

A copy of the Draft Plan is available for review at the Main Office of Valley Water Company, 4524 Hampton Road, La Canada Flintridge.

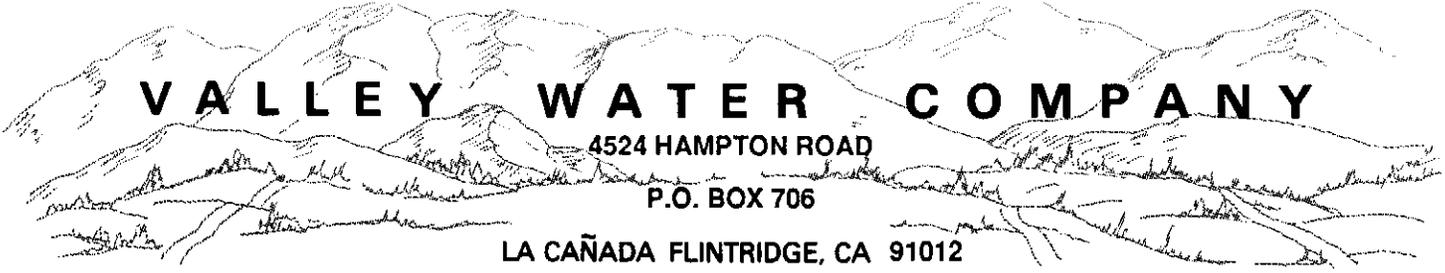
The updated Plan is scheduled for adoption subsequent to public hearing subject to comments received.

Please let me know if you have any questions.

Sincerely,



Bob Fan
General Manager



VALLEY WATER COMPANY

4524 HAMPTON ROAD

P.O. BOX 706

LA CAÑADA FLINTRIDGE, CA 91012

PHONE: (818) 790-5516 FAX: (818) 790-6019

February 2, 2011

Ms. Anne Russett
County of Los Angeles
320 W. Temple, 13th Floor
Los Angeles, CA 90012

**RE: Notice of Intention to Adopt
Urban Water Management Plan**

Dear Ms. Russett,

This letter serves as a notice of Valley Water Company's intent to adopt an updated Urban Water Management Plan (Plan). A public hearing will be scheduled sometime in April 2011 to address comments, which may be submitted in writing before that time to:

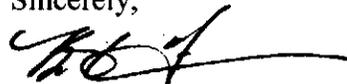
Valley Water Company
P.O. Box 706
La Canada Flintridge, CA 91011
Attention: Bob Fan

A copy of the Draft Plan is available for review at the Main Office of Valley Water Company, 4524 Hampton Road, La Canada Flintridge.

The updated Plan is scheduled for adoption subsequent to public hearing subject to comments received.

Please let me know if you have any questions.

Sincerely,



Bob Fan
General Manager

Appendix E
Public Hearing Notice

La Canada Valley Sun
Crescenta Valley Sun

CLASSIFIED ADVERTISING **PROOF**

La Canada Valley Sun
Crescenta Valley Sun

Printed by: 9751 Audri Ferguson - Legals
Salesperson:
Phone:

Feb 22, 2011, 4:10 pm
Ad# 34131019

Account Information

Phone# (818) 790-5516
Name: Valley Water Company
Address: P.O. Box 706
La Canada, CA 91011

Acct# 221418805

Client:
Placed by
Fax#

Ad Information

Start date: 03-03-11
Stop date: 03-03-11
Insertions: 1
Rate code: ~Y Legal Gross Per Line Rate
Taken by: 9752 Audri Ferguson - Classified
Size: 1 x 50.000
Billed size: 50.00 7ptlines
Keyword:
Ad type: Liner

Classification: 13000-Legal Notices
Publications: TCN VALLEY SUN

Ad Copy:

**NOTICE OF A
PUBLIC HEARING**

Valley Water Company's
Draft Urban Water
Management Plan

Valley Water Company has updated its urban Water Management Plan as required by the State Department of Water Resources. Accordingly, a public hearing will be held on Thursday, April 14 from 9 am to 10 am to address the Draft Plan. The public is invited to give its input during the hearing which will be held in the A. E. Harrel Conference Room at the office of the Company located at 4524 Hampton Road, La Canada Flintridge, California. The Draft Plan is scheduled for adoption by Valley's Board of Directors at the April 16 Board meeting.

Copies of the Draft Plan are available for public review at Valley's office.

Please direct questions regarding the Draft Plan to the General Manager prior to the public hearing either in person at the above cited address, via telephone 818-790-5516 or by email to blan@valleywatercompany.com.

Published in the La Canada Valley Sun, March 3, 2011.

La Canada Valley Sun
Crescenta Valley Sun

CLASSIFIED ADVERTISING **PROOF**

La Canada Valley Sun
Crescenta Valley Sun

Printed by: 9751 Audri Ferguson - Legals
Salesperson:
Phone:

Apr 4, 2011, 8:43 am
Ad # 34228529

Account Information

Phone# (818) 790-5516
Name: Valley Water Company
Address: P.O. Box 706
La Canada, CA 91011

Acct# 221418805

Client:
Placed by:
Fax#:

Ad Information

Start date: 04-07-11
Stop date: 04-07-11
Insertions: 1
Rate code: ~Y Legal Gross Per Line Rate
Taken by: 9752 Audri Ferguson - Classified
Size: 1 x 50.000
Billed size: 50.00 7ptlines
Keyword:
Adtype: Liner

Classification: 13000-Legal Notices
Publications: TCN VALLEY SUN

Ad Copy:

**NOTICE OF A
PUBLIC HEARING**

Valley Water Company's
Draft Urban Water
Management Plan

Valley Water Company has updated its urban Water Management Plan as required by the State Department of Water Resources. Accordingly, a public hearing will be held on Thursday, April 14 from 9 am to 10 am to address the Draft Plan. The public is invited to give its input during the hearing which will be held in the A. E. Harrel Conference Room at the office of the Company located at 4524 Hampton Road, La Canada Flintridge, California. The Draft Plan is scheduled for adoption by Valley's Board of Directors at the April 18 Board meeting.

Copies of the Draft Plan are available for public review at Valley's office.

Please direct questions regarding the Draft Plan to the General Manager prior to the public hearing either in person at the above cited address, via telephone 818-790-5516 or by email to bfan@valleywatercompany.com.

Published in the La Canada Valley Sun, April 7, 2011.

faxprf1.t

Appendix F
Copy of Plan Adoption

RESOLUTION NO. 04-11-001

RESOLUTION OF THE BOARD OF DIRECTORS
OF THE VALLEY WATER COMPANY,
LOS ANGELES COUNTY, CALIFORNIA,
ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

**A RESOLUTION OF THE VALLEY 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, including SBx7-7 and SB 1087, 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 Valley Water Company (VWC) is an urban supplier of water providing water to a population less than 10,000; and

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

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

WHEREAS VWC 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 on April 14, 2011; and

WHEREAS VWC did prepare and shall file said Plan with the California Department of Water Resources by May 16, 2011;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of VWC that the 2010 Urban Water Management Plan is hereby adopted 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.

PASSED AND ADOPTED this 16th day of April, 2011

By: Das V. Helms
President

By: [Signature]
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